DOCUMENT RESUME

ED 038 284 24 SE 008 105

AUTHOR Clark, C. Edward
TITLE Study of Eye Safety Programs in Utah Secondary Schools, Final Report.
INSTITUTION Utah Research Coordinating Unit for Vocational and Technical Education, Salt Lake City.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO BR-6-3046
PUB DATE Dec 69
GRANT OEG-4-7-063046-1612
NOTE 102p.

EDRS PRICE EDRS Price MF-$0.50 HC-$5.20
DESCRIPTORS *Eyes, Industrial Arts, Laboratory Safety, Safety, *Safety Education, *Secondary Schools

ABSTRACT

This study investigated the degree of compliance, nature of local policies and implementation of the policies, and a determination of whether additional state directives and assistance were necessary for an effective eye safety program. All superintendents, principals, vocational directors, industrial arts and science teachers on the junior and senior high level and four students from one class taught by each teacher were polled. Response from principals and industrial arts teachers was 68 to 73 percent and from other categories, 37 to 51 percent. About 60 percent of responding administrators had a copy of eye safety legislation while 75 percent had read it. Other findings included: 147 of 416 teachers had copies of eye safety policies; 62 percent of the administrators stated they always complied with established policies; 42 percent of science students and 47 percent of industrial arts students had violated class policy at one time or another, while only six percent of the former and 15 percent of the latter violators had been penalized. A number of recommendations to improve eye safety were made. (BR)

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PA 24

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FINAL REPORT
Project No. 6-3046
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STUDY OF EYE SAFETY PROGRAMS IN UTAH SECONDARY SCHOOLS

December 1969

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STUDY OF EYE SAFETY PROGRAMS IN UTAH SECONDARY SCHOOLS

C. Edward Clark, Principal Investigator
John F. Stephens, Project Director
Utah Research Coordinating Unit for
Vocational and Technical Education
1400 University Club Building
Salt Lake City, Utah 84111

September 1969

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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SUMMARY

Background for the Investigation

The investigation resulted from a speech given in Salt Lake City by a director of the National Society for Prevention of Blindness which cast the Utah school eye safety programs in somewhat of an unfavorable light. Objectives of the study were set primarily by the state specialist for industrial arts education with the approval of the specialist for science education. Basically, a study of the eye safety programs in Utah secondary schools was envisioned with emphasis upon degree of compliance, nature of local policies and implementation of the same and a determination as to whether additional state directives and assistance were necessary to an effective eye safety program.

All superintendents, principals, vocational directors, industrial arts and science teachers on the junior and senior high level (with minor exceptions) were polled as were four students from one class taught by each teacher. Response was very good from principals and industrial arts teachers and students (68-73 percent) but generally poor in the other categories (37.5-51 percent).

Limitation of the study included the poor response plus an inadequate validating process of the questionnaire itself. An apparent reluctance, especially on the part of administrators, to give unfavorable responses left too many blank spaces on the returned questionnaires.

Research Methods

The questionnaire was mailed to respondents at a given school in one envelope which contained packets for specified teachers. The teacher then distributed the questionnaire to four students of his choice except in a few cases where the entire class was polled.

The results of the poll were compiled by the data processing section of the State Board of Education. For the benefit of the science and industrial arts specialists, charts listed the returns according to three groupings of districts, the first being largely urban, the second consisting of districts which have students drawn about equally from urban and rural populations, and the third consists of districts drawing primarily from rural areas. These groupings were largely ignored for the purpose of reporting the results since few, if any, significant differences were noted between the groups.

FINDINGS AND ANALYSIS

Awareness of Eye Safey Legislation

About sixty percent of responding administrators have a copy of the statute while seventy five percent have read it.

Existence of Local Policies

Seventeen of the forty school districts definitely have formal, written eye safety policies which have been disseminated to all principals in the districts while ten districts have an oral policy. Seven other districts definitely have no written policy but may have an oral policy. No returns were received from the remaining six districts. As for principals, thirty two have written policies, thirty five rely on the district policy and ten rely on the individual teacher to formulate a class policy. Twenty principals returned the questionnaire but did not answer this question while thirty principals admitted they had no formal written policy.

Implementation of Local Policies

Virtually all students who had been informed of a class eye safety policy received a safety lecture. This was the primary means of informing the students about the class policy although twenty two percent of the students also saw safety films. Science students were less likely to have the aid of a safety film than were industrial arts students as twenty eight and a half of the latter saw films as compared with twelve percent of the science students.

Students were reminded of the eye safety policy in several ways but primarily through verbal reminders from the teacher, presumably when a violation was observed. Such innovations as the goggle-goon, a safety foreman and permitting a student who discovers a violation to require the violator to perform his clean-up chores appear to be effective ways to maintain a student's interest in eye safety. Twenty nine percent of industrial arts teachers also displayed posters in the shop.

The most common method used to enforce the class policy was, first, a verbal warning; then, secondly, restriction of use of facilities for violators or lowering the student's grades. Seventy two industrial arts teachers required the successful completion of a safety test before access to the facilities was permitted.

Furnishing Eye Safety Equipment

The procedure most common to all students so far as supplying eye safety ware is concerned is to distribute it for use during the immediate class period or to make it available at the work stations (forty one percent). But more (forty eight percent) industrial arts students purchase their eye safety equipment from the school or from private sources as compared with twenty three percent of science students who do so. Of those who borrow just for the class period, fifty four percent are science students while thirty four percent are industrial arts students.

More than fifty one percent of all students who wear corrective eye glasses are supplied with safety goggles which fit over their regular glasses while twenty six percent of industrial arts students are required to have their own prescription safety glasses as compared to five percent of science students. No provisions are made for ten percent of industrial arts students and twenty five percent of science students.

Forty percent of administrators say that the district procures the eye safety equipment while thirty seven percent said teachers, and fourteen percent said schools, did so.

As to who was responsible for assuring that the eye safety materials procured met the standards of the American Standard Safety Code for head, eye and respiratory protection, the district was selected by forty seven percent of respondents, the teacher by twenty seven percent and the school by seventeen percent.

Administrative respondents largely felt that equipment available provided adequate protection (eighty five percent) and ninety three percent of the teachers responding felt that the variety of equipment available met the varied needs of their classes.

Compliance

The Utah eye safety statute Section 53-1-20, Utah Code Annotated, according to an unofficial opinion from Utah Attorney-General Vernon Romney, requires use of proper eye safety equipment only while actually participating in one of the activities listed in the statute, i.e., (1) "Industrial education activities involving experience with: (a) Hot molten metals; (b) The operation of machinery or equipment that may throw particles of foreign matter into the eyes; (c) Heat treating, tempering, or kiln firing of any industrial material; (d) Gas or electric arc welding; (e) Caustic or explosive materials, or (2) Chemistry or physics laboratories when using caustic or explosive chemicals, and hot liquids or solids, ..."

The Office of the State Superintendent of Public Instruction, on March 26, 1965, issued, as "ITEMS FOR SUPERINTENDENTS," a memo on the subject of the eye safety legislation. The memo expands, somewhat, the requirements of the statute itself, as interpreted by Mr. Romney, to include a requirement that proper eye safety equipment be worn while "directly observing an activity within a proximity where any possible danger exists" as well as when actually participating in one of the named activities. It is probable that the memorandum was based upon an interpretation of the eye safety law that is different from Mr. Romney's interpretation but on what might be considered the law if the title section of the statute is considered as part of the law (which, according to Mr. Romney, it is not).

Answers received from both administrative and student respondents indicated that thirty five percent of respondents were located in a jurisdiction where students were required to use eye safety equipment at all times while in the shop or lab, forty eight percent indicated jurisdictions where students were required to wear such equipment when either participating or directly observing, fourteen percent indicated that students were required to use such equipment only when engaging in an activity named by the statute. The highest standards were required of the industrial arts students where forty five percent were in the first category, forty six percent in the second and nine percent in the third, while the policy of science classes fell into the first category only thirteen percent of the time, forty nine percent for the second category and twenty three percent in the third. Thus ninety one percent of the industrial arts students were in jurisdictions where the suggestions of the Superintendent's memorandum were met while only sixty two percent of science students so qualified.

When administrators were asked to rate themselves on the question of whether they complied with the same policy required of students and to what extent, sixty two percent said always, thirty two percent said usually, four and one half percent said sometimes and one and one half percent said they never complied. Students, in general, rated their teachers high than the teachers rated themselves on compliance.

Visitors are apparently held to a somewhat lower standard than are students since only fourteen percent of respondents said visitors to shops and labs were required to wear eye safety equipment at all times, fifty five percent said when either engaged in or observing an activity, thirteen and one half percent said only when participating in an activity requiring them, and seventeen percent said use by visitors was not required in their jurisdictions.

Students were asked to rate visitors on compliance. Broken down by the two categories, eight percent of science students said visitors wore eye safety equipment at all times in the shop or lab, thirty one percent answered while participating in or directly observing an activity requiring them, twelve percent said only when participating in such an activity and thirteen percent said visitors never wear eye safety devices. Over one third (thirty seven percent) of science students answered that they were not sure when visitors complied. Industrial arts students who said at all times totaled twenty four percent, while forty percent said when either participating or observing, eleven percent said only when participating, nine and one half percent said never, and fifteen and one half percent did not know.

Students were also asked to evaluate their own safety habits in the lab or shop. A majority of the science students (fifty eight percent) said they always complied; thirty two percent said they complied most of the time but not always; five percent said sometimes but not most of the time; and five percent said they never complied. Fifty three percent of industrial arts students said always; forty three percent most of the time; four percent sometimes; and less than one-third of one percent said never.

While forty two percent of science students and forty seven percent of industrial arts students admit violations of varying frequency, only six percent and fifteen percent of the former and latter respectively had been penalized therefore. Essentially the same number of students on a percentage basis had been rewarded for compliance. When the responses were collated for "always complied--have been rewarded," "committed violation--have been penalized," it was found that nine percent of science students who "always complied" had been "rewarded" as compared with ninteen percent of industrial arts students in the same category. In the violation-penalty groupings, eight percent of science students who admittedly had violated class policy had been penalized as had twenty six percent of industrial arts student violators.

As for injuries due to failure to wear proper eye safety equipment since the law became effective, twelve teachers indicated one-two while three indicated three-four and six did not know. Injuries occuring while wearing safety eye ware according to fifteen teachers (one-two), three teachers (three-four), and two teachers (five-ten). Ninety five teachers felt accidents had been prevented because of use of eye safety equipment, fifty nine of these said one-two had been prevented, seventeen said three-four, fifteen said between five-ten and ten said more than ten. Thus teachers felt a minimum of twenty one injuries had occurred since September 1965, that a minimum of thirty four accidents had occurred despite the use of proper equipment, and that a minimum of 195 eye injuries had been prevented during the same period.

Students were asked the same questions in relation to the present school year and in the question regarding preventions pertaining to themselves only. Their answers indicated that during the present school year a minimum of 47 accidents had occurred due to failure to wear proper equipment, that 40 had occurred even though wearing safety eye ware, and that 1,989 eye injuries had been prevented this year. It is to be noted that in each case the students' figures for one year are higher than the teachers'.

With regard to whether sufficient eye safety equipment was available that every student in the shop or lab could engage in an activity requiring such equipment, twenty three percent of science students answered in the negative while seventeen and one half of industrial arts students also answered negatively.

When asked to name specific activities (from among those named in the statute) performed in their class, school or district and then, in a subsequent question, to name the activities specified which, according to the eye safety policy on their level, required the use of eye safety devices, eighty percent of the respondents correctly said that all listed as being performed required the use of such equipment. Due to significant bias resulting from an insufficiently clear question, the answers of the remaining twenty percent were of no value.

Sanitization of Eye Safety Equipment

Of 267 teachers who indicated that equipment was shared in their classes, a majority in both science (fifty two percent) and industrial arts (fifty one percent) indicated that their equipment was never sanitized, while twelve percent of the former and twenty percent of the latter did so monthly, nine percent and twenty one percent respectively did so weekly, five percent and one percent did so daily, and twenty two percent and eight percent respectively did so after each use.

Where the equipment was sanitized, the teacher did the sanitization in more than one-half the cases and the remaining sanitization was done by the students who used them or the custodian-janitor.

The most common formula used to sanitize the equipment is that of a detergent and warm water. Use of an infrared lamp was indicated by only one teacher.

Type of Equipment Commonly Used--Student Preference

Safety spectacles are the most readily available eye safety device. Students indicated the spectacle with plastic lenses and side shields was most often found in the shop or lab as did science teachers while industrial arts teachers indicated the spectacles with glass lenses and side shields. Spectacles with or without side shields and with either plastic or glass lenses were best liked by fifty nine percent of science students as did fifty one percent of industrial arts students. Seventy three percent of teachers' responses also indicated a preference for safety spectacles. As for lenses, fifty eight percent of industrial arts teachers favored glass while seventy percent of science teachers favored plastic for durability and protection provided.

Availability of the American Standard Safety Code

Eighty five percent of administrative respondents had no copy of the code and only twenty four percent had read the code. About twenty three percent had no knowledge whatever of the code.

Additional Directives From State Superintendent

Only thirty six percent of the 578 administrators who responded to the question felt additional directives were needed. Of those who felt such a need, 173 specified the need they felt. Three items were most prominently mentioned by the latter, two being copies of the safety code and the legislation and the third being better defined standards.

Though forty percent of respondents (230 persons) had no copy of the eye safety act, only thirty persons requested a copy of it.

CONCLUSIONS AND RECOMMENDATIONS

The highlights of the many conclusions and recommendations are repeated below.

1. Too few levels of responsibility have formal, written eye safety policy. There are fairly substantial differences in the policies and some do not conform to the recommendations of the superintendent though nearly all comply with the minimum requirements of the eye safety statute. Many administrators called for standardization of policies and the investigator recommends that these requests be honored. This could best be accomplished by a uniform policy written and published by the Office of the State Superintendent of Public Instruction. This policy should require that eye safety devices be worn by all persons present in an industrial arts shop while machines and equipment are in use. Perhaps the standard could be somewhat lower for science classes but at the minimum should require the use of eye safety equipment when participating in or directly observing a listed activity. This policy should be published in a brochure appropriate for permanent reference.

2. Too few administrators have read the state statute on eye safety and the American Standard Safety Code for head, eye and respiratory protection. These should be placed in the brochure although only the portions of the code relevant to eye safety need be published.

3. Responsibility for assuring compliance with the above named code in the procurement of eye safety devices should be placed upon the procurement office or other person who actually purchases the devices.

4. Although ninety four percent of jurisdictions represented in this study have policies meeting the minimum requirements of the statute, nine percent of industrial arts and thirty eight percent of science respondents indicated their policies did not meet the slightly higher standards of the superintendent's memo. Furthermore, thirty eight percent of all administrators do not always comply with the prevailing policy. In addition, twenty percent of industrial arts teachers and forty five percent of science teachers do not always comply while forty two percent and forty seven percent of science and industrial arts students respectively have violated the prevailing policy at least once though only six percent of the former and fifteen percent of the latter have been penalized therefore. These percentages are much too high. Renewed emphasis must be placed on eye safety and on compliance with the law before a serious and costly accident occurs to one or more violators.

5. In several areas, insufficient equipment was available or used by all students in a class at one time. The percentages are significant

enough that state officials should acquire a list of specific schools and assure that this need is met.

6. Lack of proper sanitization is a serious problem in that a majority in both areas never sanitize equipment shared by more than one user. Detergetn and warm water is an acceptable method of sanitizing but should be applied after each use of the equipment.

The investigator agrees with the statement by Mr. O'Neil that what is necessary for a more effective eye safety program in Utah schools is a change of heart and attitude on the part of the teachers--and, I add, the principals and superintendents as well.

INTRODUCTION

1. Background for the Investigation

On September 24, 1968, Mr. James E. O'Neil, Director of Industrial Services for the National Society for the Prevention of Blindness Inc., addressed the annual luncheon meeting of the Utah Society for the Prevention of Blindness. Commenting on the progress made and problems encountered since the Utah legislature enacted a school eye safety statute in 1965, Mr. O'Neil commented that the legislation had seemingly had very little effect upon Utah's technical teachers, the differences of opinion still existed on the use of eye safety devices, and that "limited use of eye safety still exists, with only a little increase in the use of eye safety devices." (Emphasis in the original text.) O'Neil further commented that "eye safety in Utah schools is obviously not up to the level called for by law, ..."

This study was commissioned early in October, 1968, by the Office of the State Superintendent of Public Instruction. The principal investigator was directed to work directly with Mr. Joe Luke, Specialist for Industrial Arts Education, and Mr. Richard S. Peterson, Specialist for Science Education, in making the survey. The general objective of the study was to ascertain to what extent Mr. O'Neil's remarks accurately reflected the eye safety situation in Utah public schools. The specific objectives are set forth in the next section.

2. Objectives of the Investigation

The specific objectives set for the study are as follows:

(1) Ascertain to what extent local school administrators and teachers are aware of the eye safety legislation. (A copy of which is set forth in Appendix A.)

(2) Ascertain what local policies exist, local methods of implementation of the legislation, and the means of furnishing eye safety devices to users.

(3) Ascertain the current level of compliance with eye safety legislation.

(4) Ascertain if, and to what extent, eye safety devices are disinfected when used other than by one person exclusively.

(5) Ascertain the type of eye protection devices commonly used and the preference of students and teachers as to type.

(6) Ascertain the availability of and the degree of familiarity with the American Standard Safety Code for head, eye and respiratory protection.

(7) Ascertain whether additional directives from the State Superintendent's office are necessary to ensure proper understanding and compliance with the eye safety law.

3. Scope of the Investigation

The investigation was extensive in scope. Questionnaires were sent to each of the forty district school superintendents in the state, to the thirty four vocational directors and one vocational supervisor, to each of the eighty four high school principals and eighty junior high school principals, to 429 chemistry, physics and general science teachers, and to 340 industrial arts teachers on both junior and senior high levels (drafting teachers were not polled). In addition, 3,570 student questionnaires were sent, determined as follows: Each teacher of the science classes mentioned above were asked to select any four students from a given class chosen by the investigator, so long as all four students were given instructions during the same class hour. With the exception of twenty classes, the same instructions were given to every industrial arts teacher polled. The twenty excepted cases were asked to poll the entire class. The total number of questionnaires sent out were 4,578--3,570 to students, and 1,808 to teachers and administrators.

Those respondents to the survey included the following numbers and percentages:

Superintendents	15 of 40	37.5%
Vocational Directors	18 of 35	51 %
Principals	117 of 164	71 %
Science Teachers	239 of 429	56 %
Indust. Arts Teachers	249 of 340	73 %
Total Teachers/Admin.	638 of 1,008	63 %
Science Students	844 of 1,716	49 %
Indust. Arts Students	1,262 of 1,854	68 %
Total Students	2,106 of 3,570	59 %
Total Students, Teachers and Administrators	2,744 of 4,578	60 %
Science Teachers and Students	1,083 of 2,145	50.5%
Indust. Arts Teachers and Students	1,511 of 2,194	69 %

The relatively low percentage of responses may be accounted for, in part, by the fact that the questionnaires were sent out only one month before the Christmas holidays began. The second cutoff date for responses was set for the last day of school before the holidays began, and it is felt that some interference may have been caused by the approaching holidays. Also, since the investigator had no means of knowing in advance which science classes had labs, questionnaires were sent to all of them. This resulted in the return of some questionnaires returned marked simply "not applicable because no labs are held." It is also felt that a number of science teachers made no effort to respond for the same reasons--thus accounting for the substantial difference in percentage returns between science and industrial arts teachers, and science and industrial arts students. Finally, a few returns came in after the Christmas holidays but were not considered because the returns received before the cutoff date had already been sent to, and were being processed by, the data processing section.

4. Limitations of the Investigation

The major limitation upon the study would appear to be the possible reluctance of respondents to honestly admit that their class policy was not in accordance with state law, or that they had no policy at all. There was the further possibility of the teacher coaching student respondents as to the correct answers and also telling the class formally of the policy just before they completed the questionnaire. That this happened on several occasions, at least, cannot be doubted because the student respondent states as much on his questionnaire. How prevalent this practice was can only be a matter of speculation

RESEARCH METHODS

1. Preparation of Forms

When the subject of the investigation had been assigned, the principal investigator met with the director, associate director and several other researchers of the Research Coordinating Unit and discussed the assignment. Broad guidelines had already been established by the specialists for the science and industrial arts fields. The group mentioned discussed specific questions which could be asked to obtain the information desired. It was decided to include students as interviewees, even though they had not been suggested by the coordinating specialists. Rough examples of possible questions were suggested and these were later refined by the principal investigator and a rough draft of the form was prepared.

2. Validating the Questionnaire

A rough draft of the form--actually two forms, one for teachers and administrators and one for students--was administered to an industrial arts and chemistry class at West High School. Suggestions for improvement of the questionnaire were requested and several were received. Mr. Dee Nielsen, instructor of the industrial arts class, was especially helpful in offering knowledgeable suggestions since he had performed extensive research on this subject in preparing his Master's Degree thesis on the eye safety program in industrial arts classes at West High School.

3. Further Changes in the Questionnaires

After receiving the suggestions from West High School, the questionnaires were revised and submitted to the specialists for their suggestions. The industrial arts specialist held a meeting with his advisory board which resulted in a number of changes and substantial modification or elimination of several of the originally stated objectives. The science specialist did not concur with all of the changes which accounts for some questions which were asked of science students but not industrial arts students. Those objectives stated under subdivision two of the Introduction section are those which emerged after the changes suggested above were taken into consideration.

Following these suggestions, again, revised questionnaires were prepared, re-submitted to all concerned, approved and sent to the printer. One further change resulted when more time for printing was required than originally anticipated, and a pen-and-ink change was made in the date set as the cutoff date.

Copies of the finalized questionnaires are set forth in Appendices B and C. A copy of the follow-up form which established the second and final cutoff date is included as Apendix D.

4. Method of Distribution

The question of whether to administer these questionnaires personally or mail them to the parties concerned with instructions was settled by the specialists who hoped for the latter because of the minimum amount of class disruption entailed. This decision was accepted by the principal investigator and distribution proceeded. Packets were prepared for each junior and senior high school, including questionnaires for students, teachers, and principals, and sent to the principal for distribution. The principal was also asked to ensure return by collecting these when completed and sending them all at once to the principal investigator. For the most part, this was done, and probably explains the close percentage correlation between returns for teachers and principals. The principals, however, were not as careful to see that student questionnaires were returned as they were about faculty members'. Superintendents and directors were sent individual copies of the questionnaire.

5. Compilation of Results

All questionnaire returns received by December 11, 1968, were taken to the data processing section on December 13, 1968. The final cutoff date was December 21, 1968, and all questionnaires received by that date were taken to the data processing on December 23. Due to several intervening factors, i.e., holidays and high priority projects, the results of the research were not returned from data processing until mid-March, 1969. Since both questionnaires were extensive (33 questions for teachers-administrators and 22 for students), it was not feasible to compile the results by hand when more than 4,500 questionnaires were involved.

6. Methods of Analysis

The forty school districts in the state were broken down into three groups* based on two criteria: size of the school district and classification as urban, urban-rural, or rural. The breakdown was a rather rough one, primarily for the convenience of the data processing unit, with the consequence that (from the viewpoint of the investigator, at least) there are some overlaps that detract from the study to a minor degree, i.e., several districts in each of the smaller groups are larger than one or more districts in the larger groups. Group I is composed of nine districts regarded as highly urban, ranging in size of enrollment from 2,837 to 26,663. Group II is partly urban but drawing from a rural population, and, in size, ranging from 1,527 to 4,102. Group III is composed of the highly rural areas of the state, including twenty two districts with sizes of 82 to 1,743. (All references to enrollment consider only junior and senior high school students.)

This breakdown did not entirely meet with the approval of the principal investigator (the arrangement was made by the industrial arts specialist and the data processing programmer) though he could see the desirability of the arrangement from the standpoint of the data processing unit. The objection of the investigator was that any remedial measures which were necessary could not be taken with regard to an entire district because it would not be known how many, or which, schools or districts within the group were not in compliance with the eye safety legislation. Of course, the above information is available on the data punch cards, and accessible with some additional work by the data processing unit, so this objection can be overcome if the results of the report show the necessity.

In addition to the breakdown by groups, an effort will be made to analyze the results in terms of the categories of respondents, and in some cases a comparison of groups will be made.

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*Group I: Alpine, Davis, Granite, Jordan, Nebo, Weber, Salt Lake City, Ogden, and Provo. (Urban districts, 2,837 to 26,663 secondary students.

Group II: Box Elder, Cache, Carbon, Iron, Sevier, Tooele, Uintah, Logan, and Murray. (Urban-rural, 1,527 to 4,102).

Group III: Beaver, Daggett, Duchesne, Emery, Garfield, Grand, Juab, Kane, Millard, Morgan, North Sanpete, South Summit, Tintic, Wasatch, Washington, and Wayne. (Rural, 82 to 1,743.)

FINDINGS AND ANALYSIS

Objective: Ascertain to What Extent Local School Administrators and Teachers are Aware of the Eye Safety Legislation.

Question 29 of the questionnaire (the teachers' and administrators' questionnaire will be thus referred to; when reference is made to the student questionnaire, it will be specifically called the student questionnaire) asks whether respondents have read the Utah eye safety legislation with the following results:

Superintendents:	Polled	40
	Returned questionnaire	15
	Had read the statute	3
	Had not read the statute	1
	Did not respond to the question	11
Vocational Directors:	Polled	35
	Returned Questionnaire	18
	Had read the statute	11
	Had not read the statute	4
	Did not respond to the question	3
Principals:	Polled	164
	Returned Questionnaire	117
	Had read the statute	81
	Had not read the statute	13
	Did not respond to the question	23
Science Teachers:	Polled	429
	Returned Questionnaire	239
	Had read the statute	118
	Had not read the statute	104
	Did not respond to the question	17
Industrial Arts Teachers:	Polled	340
	Returned Questionnaire	249
	Had read the statute	214
	Had not read the statute	24
	Did not respond to the question	11

Percentage-wise, sixty eight percent of all teachers returning questionnaires had read the statute, while thirty two percent either had not read it or left that particular question blank which, perhaps, indicates that they had not read it either. By contrast, however, only slightly less than fifty percent of science teachers had read the statute while eighty six percent of the industrial arts teachers returning the questionnaires had read it. Seventy five percent of superintendents who answered the question had read the statute, but since eleven of fifteen left that question blank, the percentage of superintendents returning questionnaires who had read the statute was only twenty percent. Principals and vocational directors who had read the statute numbered sixty nine percent and sixty one percent respectively. Overall, of 638 teachers and administrators who returned the questionnaire, 427 had read the statute (sixty seven percent); 146 admitted that they had not (twenty three percent); and sixty five (ten percent) did not answer this particular question.

Objective: Ascertain What Local Policies Exist, the Local Methods of Implementation of the Eye Safety Legislation, and the Means of Furnishing Eye Safety Devices to Users.

A. Existing Local Policies

Questions one, two, and three pertain to the existence of an eye safety policy and on what level or levels, i.e., district, school or class. Question one asks superintendents and vocational directors whether an eye safety policy exists on the district level. (Because of the small number of superintendents responding, fifteen out of forty, the principal investigator called as many as could be reached by phone. These results are also included in the information below.) Question two asked principals, "if the district has *no* written eye safety policy, has the *school* a written policy which has been disseminated to all relevant teachers?" Space was provided for a yes or no answer as well as alternatives to indicate that the district *did* have a policy or that the individual teachers affected had a policy. Question three was addressed to affected teachers and was identical in all respects to question two except that it did *not* contain the words "written policy."

The results are presented in chart form on the following page. Bear in mind that question one and two pertain to *written* policy while teachers were only asked concerning a policy, without reference to whether written or oral.

Reliable information from question one: In summarizing the information presented above, it can be said that of the forty school districts in the state seventeen have a definite, formal, written eye safety policy which has been disseminated to all principals in the district. Ten districts have oral policies. Seven districts *may* have an oral policy, but definitely have no written policy. (There is some uncertainty here because the principal investigator was unable to contact the superintendents to clarify this matter.) In the remaining six districts, the investigator was unable to contact superintendents by phone and no questionnaires were returned from the districts either by the superintendent or the vocational industrial arts directors. These six were Millard, North Summit, Rich, South Sanpete, Salt Lake City, and Tooele districts.

Chart Number 1

District	Question #1 (Supts & Voc.Dirs)		Question #2 (Principals)				Question #3 (Teachers)			
	Written Policy	Oral Policy	Any Policy At All		District Policy	Class Policy	Own Written Policy		District Policy	School Policy
			Yes	No			Yes	No		
Alpine	1		3		3		8	3	9	3
Beaver	1		1				2	2		
Box Elder	1		1		2		5	4	7	1
Cache	1		1	1			5	5	3	
Carbon		X	1		3		4		4	1
Daggett		X		1			1			
Davis	1		1		4		13	9	12	
Duchesne	1							1		
Emery	1		1		1	1	1	4	2	
Garfield		*	1		1		1	2		1
Grand	1			1	1		1	2	1	
Granite	1		5	2	5		20	11	31	
Iron		*		1			2	3		
Jordan	1		2	1	2		15	9	6	1
Juab		*								
Kane	1				2			1	3	
Millard**					1	1	2	1		2
Morgan		X					1	1		
Nebo		X		2	1	2	5	11	2	
North Sanpete		*		1				3		
North Summit**								1		
Park City	1		1					1	1	
Piute		X				1	1			
Rich**						2	1	2		
San Juan		*					3	1		

Chart Number 1 continued

	Question #1 (Supts & Voc.Dirs)		Question #2 (Principals)				Question #3 (Teachers)			
District	Written Policy	Oral Policy	Any Policy At All		District Policy	Class Policy	Own Written Policy		District Policy	School Policy
			Yes	No			Yes	No		
Sevier	1				1		1	1	5	
South Sanpete**				2			1	3		
South Summit		X						2		
Tintic		X				1	1	2		
Tooele**			1				1	4		
Uintah	1		1		1		3	6	2	1
Wasatch		X		1	1		2	2	1	
Washington		*	1	1			3	3	1	
Wayne		*		1				1	1	
Weber		X	1	2	2		14	13		2
Salt Lake**			6	1	2		21	10	14	1
Ogden	1		2	1	1		3	9	1	
Provo	1		1			1	3	4	1	
Logan	1				1			2	2	
Murray		X	1	1			3	5	3	
Totals	17	10	32	20	35	10	147	144	112	13

*These districts may have an oral policy, but definitely no written policy.
** Investigator was unable to contact superintendents by phone.

The most valuable information to be obtained from all this is that twenty seven school districts have either oral or written eye safety policies while thirty five rely on the district policy and ten on the teachers' individual class policy; 147 teachers have written eye safety policies while 112 rely on the district policy and thirteen rely on the school policy. Beyond this, very little can be ascertained from these three questions because of the apparent inattention to the question and/or the confusion engendered by the investigator's failure to make the question clearer.

Also to be salvaged from the general confusion regarding questions one and three is the fact that at least thirty principals have no formal, written eye safety policy while 144 teachers are in the same position.

B. Local Methods of Implementing Eye Safety Policy

Several questions were designed to solicit this information. These questions, numbers four, five, and ten relate to the methods of disseminating the policy, reminders, and enforcement. Student questions and answers are relevant here for the first time, student questions one, two and six being designed to supplement the information obtained from teachers and administrators.

Question four asks, of principals and teachers, "How is information concerning eye safety policy disseminated to students?" Student question one asks: "How were you informed of the class policy relating the wearing of eye safety glasses in the shop/lab?" Summarizing the results, it is clear that twenty seven schools in group I, nine in group II, and eight in group III utilize films as well as class lectures. No schools and only one teacher used just safety films, but sixty six schools used the lecture method only. There is no simple method of ascertaining whether those students who had the policy and the dangers further emphasized for them through viewing the film were in fact more safety conscious, but it seems reasonable to assume that being able to view scenes of potential danger and actual damages in addition to the lecture would be superior to merely hearing a lecture or even seeing a demonstration. Other methods mentioned included demonstrations, and variations of the lesson/lecture answer, i.e., "the teacher told me," or "the teacher showed me," etc. Some of the science teachers used this space to indicate that they gave demonstrations whenever an occasion arose for the use of eye safety equipment, or indicated that there were no activities in their classes which required the use of eye safety devices so no information was disseminated on the subject. Some of the science students gave corresponding answers.

Overall only twenty two percent of the students were introduced to the need for eye safety by the use of safety films, while eighty two percent were introduced to the subject through lectures or safety lessons (including ninteen percent who also saw film together with the lecture).

When those students who gave answers such as demonstrations, "the teacher told me," or "the teacher showed me," this figure probably approaches ninety percent or more, encompassing virtually all of those students who had been informed of an eye safety policy.

Science students were much less likely to be introduced to eye safety by the use of films, whether as a primary or secondary method, as only twelve percent of science students saw films while nearly twenty eight and one half of industrial arts students saw films. By groups, twelve percent of science students and thirty one percent of industrial arts students in Group I saw films; eleven percent, science, and twenty six percent industrial arts in Group II; while thirteen and one half percent of science students and twenty one percent of industrial arts students in Group III saw films.

Soliciting only information from teachers and students, question five and student question two ask what types of reminders are given to students as a follow-up to the introductory materials. Several original ideas were used in this area by teachers, three of them being the use of a safety foreman, the use of a goggle-goon, and method of allowing the student apprehending another student in violation of the safety policy to force the guilty student to do his clean-up job. The goggle-goon was a device made in such a manner as to be worn about the delinquent student's neck until someone else was caught violating the class safety policy. The safety foreman idea merely utilized a student as the shop foreman to assure that safety policy was obeyed.

By far the most common method of reminding the students of the eye safety policy was a verbal reminder from the teacher, sixty percent of science teachers, and thirty seven and one half percent of industrial arts teachers using this method, while fifty one percent of science students and forty seven percent of industrial arts students admitted being reminded by this method. A totals chart for all groups shows the following:

	Science Teachers	Ind. Art Teachers	Science Students	Ind. Art Students
Further lessons/lectures	14%	21%	10%	13%
Verbal reminders from teacher	60%	37%	51%	47%
Posters in shop or lab	13%	29%	14%	31%
Periodic tests or examinations	1%	10%	2%	5%
Other	3%	3%	3%	2%
No reminders given	9%	--	21%	1%

Question ten and student question six ask about the methods used to enforce eye safety policy. Though all respondents, including students, were asked to answer this question, the most pertinent responses necessarily come from students and teachers because it is they who are most closely associated with the dangers which are prevalent in the shop or laboratory. Hence, a chart of total responses from these sources is presented below. Since multiple responses were accepted on this question, percentages are not given.

	Science Teachers	Ind. Art Teachers	Science Students	Ind. Art Students
Verbal warning	191	236	500	1,000
Grade lowered	19	56	89	285
Dismisses from class	14	41	44	144
Use of facilities restricted	69	138	119	369
Reward	5	4	19	19
Completion of Safety test (tchrs)	5	72	-	-
Other	4	7	41	92
None-Not enforced	4	0	99	17
Do not know (students)	-	-	126	38

C. Means of Furnishing Eye Safety Devices to Users

Questions 17-19, 26, 27, and 32 plus student questions 10 and 11 relate to this objective, and were designed to solicit information regarding methods of furnishing eye protective devices to all students, to students who already wear glasses, determination of who selects the glasses to be used, who is charged with assuring that safety ware meets the requirements of the American Standard Safety Code for head, eye and respiratory protection, and the adequacy of the quantity and quality of eye ware available.

The largest number of students are loaned safety eye ware for use during the class period in which they are used or they are made available at work stations, 454 science students being outfitted in this manner, along with 426 industrial arts students. However, 603 industrial arts students purchase thier safety glasses from the school (577) or a private source (26) as compared with only 198 science students, 190 of whom purchase their safety glasses from the school. Science students who rent (14) or borrow safety ware for the duration of the course (81) make up the remainder of the answers. This compares with 87 industrial arts students who rent and 139 who borrow for the length of the course.

A special problem is presented when the lab or shop student already wears prescription glasses. Question eighteen and student question eleven requests information as to how this problem is surmounted. The answers of students and teachers indicate that the problem is most frequently met simply by providing cover goggles which fit over the students' corrective glasses; more than fifty one percent of all responding students were thus protected. In the case of twenty five students, prescription safety glasses were provided by the school while fifty one teachers and 257 students responded that no provisions were made. A substantial number of students (183) had their needs met in other ways, i.e., those taking welding classes used welding helmets, when necessary; some used face shields over glasses, etc.

Question ninteen and thirty two relate to procurement of safety ware within the districts and ask for information regarding those responsible for purchasing the safety ware and seeing that there should be a high correlation between the answers to the two questions, since the persons selecting the eye ware would be the most obvious persons to have responsibility for assuring that it meets required standards.

The responses to question ninteen and question thirty two were equal in number, 718 to each question, but the responses varied slightly as to the responsibility for procurement and the responsibility for conformity to standards. Also, multiple responses were given to both questions. It is difficult to determine whether this came about because the responsibility itself is divided, because schools or teachers are left to their own devices in these respects, or because of uncertainty or inaccuracy on the part of the respondents. The returns show that forty percent of respondents in all categories placed the responsibility for selecting safety eye ware upon the district while forty seven percent placed the responsibility for conforming to standards with the district. Responsibility for meeting standards was place on the school by seventeen percent of the respondents though only fourteen percent of respondents designated the school as the agent for selecting eye ware. Teachers, according to thirty seven percent, selected the safety ware and, according to twenty seven percent, were responsible for conformity to safety standards. One percent of respondents said the student or parent selected the eye ware and that they were responsible for safety standards as well. Eight percent gave other answers to both questions.

As to the adequacy in quality and variety plus quantity questioned in questions twenty six and twenty seven, the responses indicated that needs are met in both areas. With superintendents, principals, directors, and teachers responding to question twenty six regarding adequacy of protection provided by the equipment available, eight y five percent of all respondents felt the equipment available did provide adequate protection. Teachers only responded to question twenty seven regarding the varieties of equipment available in their shops and labs with ninety three percent replying that no additional types of protective eye safety devices were needed for their particular activities.

In summarizing the information received concerning objective two, it can be said that twenty seven school districts definitely have either oral or written eye safety policies; that thirty two schools definitely have written eye safety policies forty five rely either on the teacher or the district to formulate the policy; that 147 teachers have written eye safety policies while 125 rely on the policy of the district or the school. Most students are introduced to eye safety by lectures or safety lessons (eighty two percent) while twenty two percent had this introduction supplemented by the use of safety films. After their original introduction to safety, most students were simply reminded verbally on occasion by their teachers, rather than further formal safety training being given or received. To enforce their policies, most teachers gave verbal warnings to the students, then restricted the use of shop or lab to those who perpetually violated the policy.

In making available eye safety devices for shop and/or lab use, the most popular method was loans to the students for use during the class period, either distributing them as needed or making them available at the work stations. For industrial arts students, however, an equally or more popular method was having the students purchase their safety glasses from the school. For those students who wear corrective prescription glasses, the problem of safety eye ware is most often met by providing cover goggles to wear over the regular glasses. Selecting the glasses to be used was the job of the school district according to forty percent of respondents, the school according to fourteen percent, the teacher according to thirty seven percent. Assuring that the devices thus selected met required safety standards was the job of the district according to forty seven percent, the teacher according to twenty seven percent, and the school according to seventeen percent. The correlation is probably not as high as could be wished for between these answers.

By far the majority of respondents to questions regarding the sufficiency of eye safety devices available thought the equipment available was adequate in respect to the protection provided (eighty five percent) and the variety and quantity (ninety three percent).

Objective: Ascertain the Current Level of Compliance with the Utah School Eye Safety Legislation.

This particular section contains the most important information of the investigation because answering this question was the principal objective of the study. To the extent that the other objectives detracted from the gathering of this information, they decreased the value of the study. It is felt that a study which examined compliance more closely and bothered less with incidental matters would have been more valuable.

A number of questions were asked in an effort to ascertain the degree of compliance with the law. Question seven and eight and student questions four and five (student questions will hereafter be designated by S.Q.) attempt to ascertain whether the existing policies conform to the state law. In question fifteen and sixteen and S.Q. seven and seventeen various respondents were asked if they and others comply with the requirement to wear eye safety devices at given times. Questions twelve through fifteen and S.Q. thirteen and fourteen pertain to the consequences of compliance and non-compliance. Other aspects of this section will be discussed as they arise.

The eye safety legislation (section 53-1-20, Utah Code Annotated), because of its wording, presents an interesting question. Though the "Title of Act" section, set forth below the text of the statute itself, contains the phrase "while participating in or directly observing" in reference to the times when eye safety devices must be worn, the body of the act requires the use of eye safety devices only while "participating in" the activities mentioned. This leaves a question, then, as to just what the act requires. To answer the question, the principal investigator contacted Mr. Vernon Romney, Utah's Attorney General, who gave an unofficial opinion that the "Title of Act" section had no legal effect whatever, and was merely the title given the act before it was passed. So it appears that the only requirement set forth by the statute is that the persons designated wear eye safety devices while participating in the named activities.

Nevertheless, the memo from the State Superintendent of Public Instruction (ITEMS FOR SUPERINTENDENTS OF MARCH 26, 1965, set forth an Appendix B) suggests the use of eye safety devices either while participaing in or directly observing a named activity.

In question six and S.Q. three respondents are asked when students are required to wear eye safety devices. Of the 2,675 persons who responded to the question, a somewhat surprising thirty two percent (844) answered that students were required to use safety devices at all times in the shop or laboratory. Contrasting science teachers and students with industrial arts teachers and students, the results show that of the former only thirteen percent required constant use while forty five percent of the latter did so. Forty eight percent of all respondents (forty nine percent of science respondents and forty six percent of industrial arts respondents) said that students were required to wear eye safety devices when either participating in or observing an activity. The fourteen percent (388) answered that students had to wear safety devices only while participating in a named activity was made up of twenty three percent of science respondents (149) and less than ten percent of industrial arts respondents. Of the six percent who answered that use of safety eye ware by students is not a requirement, ninety six percent (or 149) were science respondents and only two (slightly over one percent) were industrial arts personnel. Nearly three percent (four) were other administrators.

It can be readily seen that with regard to students, at least, eighty percent of respondents are in a jurisdiction where the policy meets or exceeds the requirements set forth in the superintendent's memo (sixty two percent of science personnel, ninety percent of industrial arts respondents), ninety four percent meet the minimum requirements of the statute itself, while six percent fall below the minimum standards, all but six in the science area. (It is probable that this figure is largely made up of general science students and teachers who did not engage in the specified activities but nevertheless filled out the questionnaire.)

In question seven (S.Q. four), respondents were asked which of the activities listed (directly from the statute) were performed in their class, school, or district. In question eight (S.Q. five) respondents were asked which of the activities performed (as answered in question seven) were designated in their local eye safety policy as activities, the performance of which required concurrent use of eye safety devices.

Some incongruities appear when a comparison is made between answers to question seven and those to question eight. It should first be mentioned that question eight ("of the activities mentioned above which are performed, indicate below those which require the use of eye safety devices") fails to make clear that reference should be made to the local eye safety policy in answering the question. Apparently some respondents were confused by the question and responded according to their knowledge of the local policy. For example, only fifty six teachers and administrators answered "all of the above" on question seven, but 140 selected that alternative on question eight. Though the phrase "according to class policy on eye safety" was used in student question five, the same confusion app rently existed since only eighty two students said "all of the above" or student question four, while 299 did so on student question five. It is also interesting to note that 350 students selected "none of the above" as an answer on S.Q. five, though there were only thirty six fewer responses on S.Q. five than on S.Q. four.

It is possible that when some respondents selected "all of the above" to question eight (or S.Q. five), they had in mind all the alternatives they had checked for question seven (or S.Q. four). Whatever the reason for the confusion, most of the meaningful information obtained from the two questions has to be obtained from respondents who gave identical answers to both questions. It can, however, be established by answers to question seven that forty six science teachers whose classes perform none of the named activities answered the questionnaire while nine similarly situated industrial arts teachers did so. These fifty five teachers and students from their classes should not have completed the questionnaire and where their responses are considered, bias the results either negatively or positively, depending upon the nature of their replies.

Of the 2,653 respondents who answered question seven and S.Q. four, 2,247 are located in a jurisdiction where one or more of the named activities are performed (2,653 less 406 who answered "none of the above"). This amounts to eighty five percent of all respondents who are affected by the eye safety law. The 406 who are not affected by the law will be ignored when figuring percentages, etc., for the remainder of this analysis.

From the responses to question seven (and S.Q. four) by the eighty five percent who are affected by the law, it can be said that 139 of the respondents were located in a jurisdiction that performed all of the named activities. This figure should most likely be higher, since a spot check of the completed questionnaires revealed that some respondents checked each of the first six items, apparently before noticing that "all of the above" was available as an alternative, but, it should be noted in some cases checked the latter as well as the former.

When the "all of the above" responses are distributed among the first six items, and the total responses for each of the six items are compared to the number of persons responding, it can be seen to what extent each activity is performed.

Of the 244 industrial arts classes and 230 science classes represented by their teachers, six industrial arts and forty six science classes engaged in none of the named activities are not counted in the statistics which follow. Of the industrial arts classes considered, 100 percent used machinery that emits sparks, fifty five percent engaged in welding activities, thirty percent engaged in heat treating or tempering operations, twenty nine percent handled hot liquids or hot solids, nineteen percent handled caustic or explosive materials and twenty six percent handled hot molten metals. The science class engaged in the named activities less extensively than did the industrial arts classes. Eighty six percent of the science classes were engaged in activities involving the handling of hot liquids while seventy eight percent of the classes handled caustic or explosive materials, nine percent performed heat treating or tempering operations, six percent handled hot molten metals and less than three percent used machinery emitting sparks or engaged in welding activities.

Due to the previously noted confusion much of the information extracted by question eight (S.Q. five) cannot be used, but some points of interest appear. For example 100 percent of the responding superintendents, principals, industrial arts teachers and vocational directors and ninety six percent of industrial arts students recognize the use of machinery that emits sparks as an operation requiring the use of eye safety devices, but from that point on the results are less encouraging. Whether the answers be interpreted as reflective of local policy or of knowledge of the state law, respondents should be nearly unanimous in their answers in other categories as well, but this is not the case. The chart showing responses in each category is presented on page 27.

It can be seen from the chart that responses of superintendents show a variation ranging from sixty seven percent to 100 percent compliance (or knowledge); principals, from sixty one percent to 100 percent; vocational directors between seventy five percent and 100 percent; industrial arts teachers from thirty six percent to 100 percent; and science teachers from sixteen percent to eighty five percent.

A collation of responses for the two questions show the number of subjects who selected identical responses in both questions. The chart is produced on page 28.

Chart Number 2

	Superin-tendent	Principal	Vocational Director	Science Teachers	Ind.Arts Teachers	Science Students	Ind.Arts Students	Totals
Number Responding	13	108	17	230	244	805	1,236	2,653
Sparking Machines	13	65	16	4 1.7%	238-98%	62	1,091	1,489
Hot Molten Metals	9	69	12	11 5 %	62-25%	64	272	499
Caustics, etc.	13	91	12	143-62 %	45-18%	401	125	830
Hot Liquids, etc.	13	89	13	158-69 %	68-28%	420	289	1,050
Welding	13	106	16	3 1.3%	130-53%	39	478	785
Heat Treating, etc.	12	74	14	16 7 %	70-29%	157	257	600
Totals	73	494	83	335	613	1,143	2,512	5,253

Chart Number 3

	Superintendent	Principal	Vocational Director	Science Teachers	Ind.Arts Teachers	Science Students	Ind.Arts Students	Totals
Number Responding	12	109	16	185	242	779	1,226	2,569
Machines that Spark	12	109	16	33	242	141	1,179	1,732
Hot Molten Metal	8	66	12	44	98	128	419	775
Caustic-Explosive	12	83	13	153	88	413	313	1,075
Hot Liquids-Solids	10	82	14	158	98	360	420	1,142
Welding	12	99	16	29	158	104	624	1,042
Heat Treating, etc.	10	74	15	40	107	162	403	811

Chart Number 4

	Superin-tendent	Principal	Vocational Director	Science Teacher	Ind.Arts Teachers	Science Students	Ind.Arts Students	Totals
Machines Which Spark	13	99	18	2	212	45	938	1,327
Hot Molten Metals	7	45	13	10	48	46	198	367
Caustics-Explosives	11	64	14	122	34	320	88	653
Hot Liquids-Solids	9	63	15	126	49	285	202	749
Welding	12	80	18	1	110	21	391	633
Heat Treating, etc.	9	55	16	12	56	87	178	413
All of Above	4*	25*	9*	-	16*	8*	54*	116*
None of Above	-	-	-	-	-	172#	38#	210#

An asterisk (*) on Page 28 indicates that the responses "all of the above" were added into each category. This method points out some incongruities. For example, only sixteen vocational directors answered both questions, but eighteen identical responses are indicated for machinery which emits sparks. This indicates that two probably checked each of the six items in addition to "all of the above."

The number symbol (#) indicates only students were offered the alternative "none of the above" on both questions. The 172 science students are apparently general science students or physics students whose classes are strictly theory while the thirty eight industrial arts students may be drafting students inadvertently included in the survey.

From the chart it can be determined that 212 industrial arts classes utilize machinery which emits sparks and the instructors for those classes require the use of eye safety devices when operating such machinery. In each figure presented on the chart the same type of conclusion can be drawn since the chart represents those who apparently did understand the question, did perform the activity and did utilize eye safety devices while doing so.

Because of the confusion which apparently exists in the minds of some respondents, however, coresponding negative inferences cannot be made.

In question 16, administrative respondents were asked to rate themselves as to the extent to which they complied with the policy required of students. Student question seventeen asks the student to judge the teacher on the same question. The alternatives offered were: (1) always, (2) usually but not always, (3) sometimes, but not usually, and (4) never.

Answering for themselves, superintendents answered as follows: three, always; six, usually; one, sometimes; and one, never. Principals answered: forty eight, always; forty seven, usually; seven, sometimes; and one, never. Directors: eight, always; eight, usually. Science teachers: 121, always; seventy six, usually; sixteen, sometime; six, never. Industrial arts teachers: 190, always; fifty, usually; three, sometimes; one, never. Percentage wise, eighty two percent of responding superintendents comply more often than not, ninety two percent of principals comply more often than not, all sixteen vocational directors comply more often than not.

Of the 219 teachers in the science categories who responded, fifty five percent always complied while thirty four percent usually complied. Only eleven percent never (6) or rarely (16) complied. Sixty one percent of science students thought their teachers always complied, almost twenty four percent thought compliance was usual. Nine percent of these students said their teachers never complied, and six percent said their teachers complied only sometimes.

Industrial arts teachers received good reports from themselves and from their students. Nearly all (98 percent) of such teachers placed themselves in the "always" category and fourteen percent in the "usually" category. Eighteen students (one percent) placed their teachers in the "never" category, while one teacher placed himself there. Three teachers placed themselves in the "sometimes" category with 46 students locating their teachers in that category.

These results would indicate, on the whole, general agreement that administrators are, in their own opinion usually complying with the safety policy. Sixty two percent of all administrators and teachers said they always complied, thirty two percent said they usually complied, four and one half percent said they sometimes complied, while one and one half percent said they never complied. Thus, ninety four percent were in substantial compliance according to their own opinions. Of all students responding, seventy four percent placed their teachers in the "always" category, seventeen and one half percent, usually; four and one half percent classified them in the "sometimes" bracket, and four percent placed their teachers in the "never" category.

To ascertain whether visitors complied with the policy, administrators and teachers were asked (Question 15): "When are visitors required to wear eye protective devices?" Students were then asked (Student Question 16): "When do visitors wear safety goggles or glasses?"

Of the 593 administrators answering, eighty five (fourteen percent) replied "at all times", 327 (fifty five percent" replied "when engaged in or observing/named/activity", 80 (thirteen and one half percent) answered "When engaged in an activity requiring them." Thus, sixty nine percent of those responding indicated that the policy in their jurisdiction, as to visitors, complied with the superintendent's memo, eighty two and one half percent indicated a policy complying with the minimum requirements of the law. A surprising seventeen percent (101) indicated that use by visitors was not required in their jurisdiction.

Students, responding to the question noted above, ANSWERED AS FOLLOWS: 355 students (59 of 782 science students and 296 of 1,241 industrial arts students) said visitors always wore safety devices in the shop or lab. This amounts to eight percent of science students and twenty four percent of industrial arts students. Thirty-one percent of science students and forty percent of industrial arts students thought visitors wore them whenever participating or observing an activity requiring them, while twelve percent of science students and eleven percent of industrial arts students indicated that visitors wore safety devices only when participating in an activity requiring them.

Thus, fifty one percent of science students thought visitors at least complied with the state law, while the answers of thirty nine percent may be interpreted as indicating that the superintendent's memo was complied with. Thirteen percent of science students said visitors never wore safety devices in the laboratory and thirty seven percent were not sure or did not know when visitors wore safety devices.

Reactions of industrial arts students can be summarized as follows: Twenty four percent answered that visitors wore safety devices all the time in the shop, forty percent thought participation or observation by visitors found then using them, eleven percent said visitors used safety glasses only when actually participating in an activity, nine and one half percent said visitors never used them and fifteen and one half percent did not know. Thus, the answers of sixty five percent of the students indicated their jurisdications are in compliance with the minimum standards of the law while fifty four percent indicated compliance with the superintendent's memo.

Students were also asked to evaluate their own compliance with the policy enforced in their own classes. (Student Question Seven.) In connection with this judgment, they were asked whether they had been rewarded for compliance (Student Question Nine) or punished for non-compliance (Student Question Eight). The alternative answers were: (1) always, (2) most of the time, but not always, (3) sometimes, but not most of the time, (4) never.

In the science group, fifty eight percent of the students chose alternative (1), thirty two percent chose (2), and five percent each selected (3) and (4). Of the industrial arts students, fifty three percent answered (1), forty three percent chose (2), four percent answered (3) and less than one third of one percent answered "never." Thus, science students would rate themselves as complying always or most of the time in ninety percent of the cases, industrial arts students reach the same conclusion in ninety six percent of the cases.

The above answers appear to place the students on a very high level of compliance. Yet, if approached, negatively, it also indicates that forty two percent of the science students and forty seven percent of industrial arts students have at one time or another violated the prevailing policies. Questions were asked to ascertain what consequences flow from violations (Student Question Eight) and from strict compliance (Student Question Nine) which was indicated by fifty eight percent of science and fifty three percent of industrial arts students.

In view of the number of students who indicate they have violated the policy at least once (forty two percent and forty seven percent of science and industrial arts students respectively), it is surprising to learn that only six percent of science students and fifteen percent of industrial arts students had been penalized for their indiscretions. Furthermore, only six percent of all science students had been rewarded for compliance while fourteen percent of industrial arts students had been awarded for compliance.

Collating the responses of those students who "always" complied with the law and those who had been rewarded for compliance, nine percent (40) of science students answering "always" (445) had been rewarded while ninteen percent (112) of 654 industrial arts students who answered "always" had been rewarded. The collation of responses of students whose answers indicated some degree of laxity in compliance obtained the following results: Only one of thirty eight science students who indicated they never complied with the policy had been punished while none of four industrial arts students who indicated they never complied had been punished. On the other hand, 11 of 43 (26 percent) industrial arts students who complied "sometimes but not most of the time" had been penalized while only two of thirty eight science students in the same category had been penalized. Of those 219 science students who indicated they usually followed the policy, twenty one (nine and one half percent) had been penalized while 132 of 509 (twenty six percent of the industrial arts students in this category) had been penalized.

Overall, then, the indications are that eight percent of all science students who, admittedly, had violated the policy at least once had been penalized. Twenty-six percent of industrial arts students in the same category had been punshied. Also, nine percent of those science students who always complied had been rewarded while ninteen percent of industrial arts students in that category had been rewarded.

Further indications of the consequences of compliance and non-compliance come from records of accidental injuries due to failure to wear safety devices or, in some instances, even though wearing safety devices, and in the number of times accidents are prevented because of compliance. Questions 12, 13, and 14 and Student Questions 13, 14, and 15 are cocerned with these points.

Administrators were asked, in Question 12, about the number of eye injuries due to failure to wear eye safety devices since September 1965 (which is, practically speaking, when the eye safety stature became effective.) Of the responding teachers, 211 science and 231 industrial arts teachers had had no injuries in their classes while sixteen of the former and seven of the latter did not know the number injured. Six industrial arts teachers indicated one to two eye injuries in their classes during that period while three indicated three to four injuries. Six science teachers indicated one to two eye injuries while six did not know. Three superintendents indicated the number of injuries were unknown, nine indicated none had occurred and one superintendent indicated one to two injuries had occurred during the period.

Two science students indicated in answering S.Q. 13, that between five and ten eye injuries had occurred in their classes this school year while one indicated one to two. Fifty six indicated they did not know how many had occurred. Twenty five industrial art students did not know while 1,224 indicated no injuries had occurred. Four industrial arts students indicated one to two injuries had occurred, two indicated between five and ten, and two indicated more than ten.

In response to Question 13, all twelve responding superintendents indicated no injuries had occurred in their districts since September 1965, while students were wearing safety eye ware.

Of ninety one responding principals, eighty six indicated no such injuries had occurred during the period while three indicated one to two such injuries had occurred. Three science teachers indicated one to two such injuries while twelve industrial arts teachers indicate one to two, three indicate three to four, and two indicate five to ten.

Students, answering for the present school year only, felt generally that no such accidents had occurred, 765 science and 1,224 industrial arts students so answering while thirty eight of the former and twenty five of the latter did not know. But two science and two industrial arts students said one to two such injuries had occurred, while one industrial arts student indicated more than ten.

Prevention of injuries was the subject of Question 14 and Student Question 15. The administrative question inquired, of the teachers only, concerning a three year period, while this time students were asked to answer concerning prevention of injuries to their own eyes only. A total of 145 science teachers and seventy industrial arts teachers felt no accidents had been prevented while forty two percent of the former and 111 of the latter did not know. But thirty five science teachers felt accidents had been prevented; twenty seven said between one and two; four between three and four; three between five and ten; and one answered more than ten. Sixty industrial arts teachers felt accidents had been prevented: thirty two said one to two; thirteen said three to four; twelve said five to ten; and nine said more than ten.

Student answers to this question should be much less speculative since their answers are with reference to their own personal experiences. Here 670 science students and 641 industrial arts students felt no injuries had been prevented but 729 students felt that they had been spared an injury due to the use of such equipment. A breakdown of these show the following:

Number of Accidents	Science Students	Industrial Arts Students
1- 2	108	376
3- 4	12	109
5-10	3	34
More than 10	11	76
Totals	134	595

By way of summary of the section on injuries, the following has been established: In the science category, teachers indicated 6-12 accidents requiring medical treatment had occurred due to failure to wear safety eye ware, and that 3-6 such injuries had occurred in spite of the wearing of safety eye ware. Science students felt eye injuries had been prevented at least 280 times. Industrial arts teachers indicated that 15-24 injuries had occurred since 1965 due to failure to wear safety goggles and that at least thirty one students had been injured during the same period despite the wearing of safety eye ware. Finally industrial arts students felt a minimum of 1,709 eye injuries had been prevented because they were wearing eye safety equipment at the time a potential accident occurred.

It is implicit in the eye safety legislation that a laboratory or shop should have enough eye safety equipment available that, if necessary, each member of the class could participate in an activity requiring such equipment at the same time and all could be adequately protected. Students were asked, in Student Question 12, if such were the situation. In response, 77 percent of science students and eighty two and one half percent of industrial arts students felt that sufficient equipment was available, while twenty three percent of the former and seventeen and one half percent of the latter felt the equipment available was insufficient.

Compliance Summary

A strict interpretation of the eye safety legislation indicates that the use of eye safety equipment be used only when a student, visitor or teacher is actually participating in an activity named in the statute. The superintendent's memo on the subject, however, suggests that such equipment should be worn while observing such activities as well as while actually engaging in them.

Thirty two percent of respondents indicated they were located in a jurisdication where students were required to wear eye safety equipment at all times in the lab or shop. Another forty eight percent were in compliance with the superintendent's suggested policy and yet another fourteen percent were in compliance with the state law as interpreted by attorney general Romney, making a total of ninety four percent of respondents who were in compliance with the law so far as their established policy for students was concerned. Part of the remaining six percent were not in violation of the law because the classes for which they were responding were strictly theory and therefore needed no such policy.

An attempt to obtain a more specific indication of the degree of compliance by asking about each particular activity mentioned in the statute was largely thwarted by confusion arising from the manner of asking the question. Nevertheless of 2,653 persons who answered either question seven or eight, 2,119 or eighty percent gave identical answers which indicates that they, at least, are in compliance with the law with regard to the specific activities mentioned.

Three (of eleven) superintendents, forty eight (of 103) principals, eight (of sixteen) vocational directors, 121 (of 219) science teachers and 190 (of 244) industrial arts teachers said they always complied with the state statute on eye safety. The remaining administrators, by category, answered as follows:

	Usually	Sometimes	Never
Superintendents	6	1	1
Principals	47	7	1
Vocational Directors	8		
Science Teachers	76	16	6
Industrial Arts Teachers	50	3	1

Thus, sixty two percent of administrators and teachers always comply with the policy of their locale, thirty two percent usually comply, four and one half percent comply sometimes and one and one half percent never comply.

As to visitors, seventeen and one half percent of student respondents indicate that visitors wore eye safety equipment at all times while visiting in their shop or lab, thirty six and one half percent said visitors wore such equipment when either watching or performing an activity requiring them, eleven and one half percent said visitors wore such equipment only when performing a named activity. Eleven percent of the students indicated visitors never wore eye safety equipment as compared to seventeen percent of administrators who said their policy did not encompass visitors use of such equipment. The remainder of the students, twenty three and one half percent did not know what the policy was as to visitors.

Ninety percent of science students placed themselves in the always or usually category as to compliance while ninety six percent of industrial arts students did so. Negatively, forty two percent of the former and forty seven percent of the latter had violated the policy at least once but only six percent and fifteen percent of the science and industrial arts categories respectively had been punished for their violations.

In both categories, it was indicated by teachers that 21-36 injuries to students had occurred since September, 1965 due to the students' failure to use eye safety equipment while at least thirty four students had been injured during the same period despite the use of such equipment. A large number of students, 729, felt that at least 1,709 injuries to their own eyes had been prevented due to the use of eye safety devices.

Finally, with regard to whether sufficient pairs of eye safety equipment were on hand so that every student could use a pair at one time, eighty and one half percent of responding students thought the supply was sufficient while ninteen and one half percent felt the supply was inadequate.

Objective: Ascertain if, and to What Extent, Eye Safety Devices are Disinfected When Used Other Than by One Person Exclusively.

Five questions were asked to obtain the information desired for this objective, three of students, two of administrators. The student questions were asked only of the science students since the industrial arts specialist requested they be omitted as to his student respondents.

Question 20 (asked of all administrators) asks: "If eye safety ware is shared by more than one user, how often are they sanitized?" In Student Question 20, science students are asked the same question. The alternative responses are: after each use; daily; weekly; monthly; not sanitized; other (students); and not shared (administrators).

Of the "other" answers from students, essentially all were to the effect that eye safety equipment was not shared while 198 administrators also answered that such equipment was not shared in their jurisdictions. The remaining 570 respondents (including science students) did share equipment. Represented by the answers of their teachers are 137 science classes and 130 industrial arts classes which share equipment. The majority in both categories do not sanitize equipment at all, fifty two percent in the science area and fifty one percent in the industrial arts category. The science classes which did sanitize the devices did so monthly in twelve percent of the cases, weekly in nine percent, daily in five percent and after each use in twenty two percent of the classes. Industrial arts classes sanitized the equipment after each use in only eight percent of the classes, daily in one percent, weekly in twenty one percent and monthly in twenty percent.

Student Question 21 asks science students who actually sanitized the equipment when it received cleansing. A total of 376 students responded of which total fifty one percent did not know. Teachers did the work in twenty six percent of the jurisdications, while students who used them did it in ten and one half percent of the reported cases. Other responses totaled twelve and one half percent being divided between the custodian and a student appointed as clean-up man for the shop equipment.

Question 21 and Student Question 22 inquire as to the methods used to clean the equipment. Six methods, are listed together with "other", "not shared" and "not sanitized" as alternatives. Of the 435 classes represented, 158, or thirty six percent, do not share equipment, and another 108, or thirty percent, do not sanitize equipment. The remaining 179 teachers who responded favor detergent and warm water as a cleansing solution over the other popular methods and these answers consisted for the most part of specific types of detergents which were used. An infrared lamp was used by only one teacher.

In summary, then, of the 137 science classes and 130 industrial arts classes which share equipment, a slight majority do not sanitize equipment at all. Of those which do, only twenty two percent of science classes and eight percent of industrial arts classes do so after each use and the addition of those which sanitize daily increase the percentages to only twenty seven percent and nine percent respectively.

When asked who actually sanitized the equipment, most (fifty one percent) science students did not know. Those who did know said the teacher did it in twenty six percent of cases and students in ten and one half percent. The most commonly used method for sanitizing the equipment was detergent and warm water.

Objective: Ascertain the Types of Eye Protective Devices Commonly Used and the Preference of Students and Teachers as to Type.

Four questions, 22-25, were asked of teachers to obtain this information. Counterparts of 22 and 23, Student Question 18 and 19, were asked of students.

In Question 22 and its counterparts, teachers and students were asked to list the various types of eye safety equipment available to them in the shop or laboratory. Most prominently mentioned by the science teachers and all students was the spectacle with plastic lenses and side shields. The industrial arts teachers most often mentioned spectacles with glass lenses and side shields followed closely by welder and cutter model goggles and the face shield. The complete list of the number of labs and shops in which various types of eye safety equipment is set forth in Appendix E, chart.

In Question 23 and its student counterpart (19) the teachers and the students were asked to state the students' preference as to the type of safety eye ware. The clear preference of science students according to both teachers (47 percent) and students (38 percent) was the spectacle with plastic lenses and side shields. Seventeen percent of the students favored the dust and splash model goggles while eleven percent favored the spectacles with glass lenses and side shield. Slightly over fifty nine percent of the science students favored spectacles of one of the four varieties listed. Another twenty seven percent favored the chipper or dust and splash goggles. Six percent of the science students favored face shields.

Some industrial arts students and their teachers noted more than one favorite. This is perhaps understandable in view of the varied activities which are carried on in a generalized industrial arts class. Most student responses (831 of 1,644 or 51 percent) indicated that the spectacle with side shield was the favorite of industrial arts students, twenty seven percent indicating a choice for glass lenses and twenty four percent for plastic lenses. Another eight percent indicated preference for the spectacle without side shield, twenty nine and one half percent preferred goggles (thirteen percent the chipper model, seven and one half percent the dust or splash model and nine percent the welder and cutter model), and slightly over ten percent liked the face shield best.

In Question 24, teachers were given the opportunity to voice their own preference as to type of eye safety equipment. Again, some persons in the industrial arts group expressed more than one choice. For example, 309 responses were received from 249 respondents in this category, of which fifty five percent preferred and recommended the safety spectacles with glass lenses (forty six percent with side shields), eighteen percent favored spectacles with plastic lenses for a total of seventy three percent who favored safety spectacles in one form or another, Nineteen percent favored and recommended goggles and six percent preferred face shields.

Science teachers favored spectacles in nearly the same ratio as industrial arts teachers (sixty two and one half percent) but expressed a preference for plastic lenses (forty seven and one half percent) over glass lenses (fifteen percent). The most popular single item was the safety spectacle with side shield and plastic lenses. Next was the dust and splash model goggles.

When asked directly in Question 25 to express a preference between type of lenses, plastic or glass, for amount of protection given and durability, fifty eight percent of industrial arts teachers expressed a preference for glass lenses, while twenty nine and one half percent expressed a preference for the plastic lenses either in a goggle or spectacle, and twelve and one half percent had no preference.

Science teachers expressed a preference for plastic over glass lenses in a ratio of seventy percent to twelve percent with eighteen percent voicing no preference. It should be pointed out, however, that it was the goggle with plastic lenses which was the clear favorite (forty two percent) over the spectacle with glass lense (eleven percent). Seventeen percent expressed a general preference purely for the plastic lense whether it was in a goggle or spectacle.

In summary, thirty seven percent of responses from science teachers said safety spectacles with plastic lenses and side shields were available in their laboratories while twenty six percent said dust and splash model goggles were available. Science students' replies indicated in thirty six and one half percent of the responses that safety spectacles with side shields and plastic lenses were available and the availability of dust and splash model goggles was indicated by eighteen percent. Industrial arts students indicated that the eye safety equipment most easily available to them was safety spectacles with side shields and plastic lenses (twenty and one half percent) or glass lenses (eighteen and one half percent) plus an additional seven percent without side shields. Close behind for industrial arts students were the face shield (fifteen percent) and the welder and cutter model goggles (fifteen percent). The results from the industrial arts teachers supported the information given by the students.

Students prefer to use the safety spectacle with side shields according to forty nine percent of the science students and fifty one percent of industrial arts students. Eight percent of the latter and ten percent of the former preferred spectacles without side shields. As to the type of lenses, seventy six percent of the science students preferring spectacles liked plastic lenses best. This compared with forty six percent of the industrial arts students who like plastic lenses best, and fifty four percent who most preferred glass lenses. The remaining twenty four percent of science students preferred glass lenses.

The glass lense was the preference of fifty eight percent of industrial arts teachers when the judgment was made on the basis of durability and amount of protection given. But seventy percent of science teachers expressed a preference for the plastic lenses on the basis of the same criteria.

Objective: Ascertain the Availability of and the Degree of Familiarity With the American Standard Safety Code for Head, Eye and Respiratory Protection.

Question 30 asked administrators and teachers of all categories whether they had a copy of the American Standard Safety Code for head, eye, and respiratory protection (hereafter referred to as the American Safety Code). This code is mentioned in the Utah eye safety legislation as follows: "Industrial quality eye protection devices as used in this section, means services meeting the standards of the American Standard Safety Code for head, eye, and respiratory protection, 1-1959, promulgated by the American Standards Association, Incorporated."

Of 574 administrators and teachers who responded to the question, 487 (eighty five percent) did not have a copy of the code. This included sixty two percent of the thirteen superintendents responding, seventy eight percent of the ninety principals, eighty percent of the fourteen vocational directors, ninety four percent of the science teachers, and eighty seven percent of the industrial arts teachers.

Question 31 asked the administrators and teachers to comment as to whether or not they had read the American Safety Code. It occurred to the investigator that perhaps some of the respondents had not even heard of the code so "have no knowledge of it" was included as an alternative answer along with yes and no.

As compared to the eighty five percent who had no copy of the code, twenty four percent had read it, fifty three percent had not read it, and twenty three percent had not heard of it or had no knowledge of the code.

In Question 32, as previously noted, respondents were asked: "Who is responsible for assuring that the protective eye wear purchased for use in the district conforms to the requirements of the American Safety

Code?" Alternatives listed were: district, school, teacher, student-parent, other. The responsibility was given to the district by forty seven percent of all respondents, to the teacher by twenty seven percent, to the school by seventeen percent, to the student-parent by only one percent and other by eight percent. (The "other" responses usually indicated some combination of the foregoing alternatives).

It is interesting to note that a majority of respondents in each category placed the responsibility upon the district. Slightly less than fifty percent of principals did so, as did forty seven percent of science teachers, forty six percent of industrial arts teachers, forty percent of superintendents and forty three percent of the vocational directors.

In summary, therefore, it can be said that 85 of 100 administrators have no copy of the American Safety Code while 23 of 100 had not even heard of it and an additional fifty three percent had not read it. Only twenty four percent of respondents had read it.

In addition, there is no general agreement as to who has the responsibility for assuring compliance with the Code in purchasing eye safety equipment. It can be said that nearly half of the respondents on a non-district level thought the responsibility was upon the district while forty percent of superintendents and forty three percent of district vocational directors agreed.

The 200 who had no copy of the statute (Question 28) and the 456 who had no copy of the American Standard Safety Code but who felt no need for such is interesting to note also. Finally, it can only be wondered what the results would have been if the question of whether additional directives from the district were necessary.

In summary, then, it can be said that sixty percent of those responding have a copy of the eye safety act while seventy five percent have read it. Sixty four percent of respondents felt no need for additional directives from the state office. Of the thirty six percent who felt such a need, thirty one and thirty wanted copies of the safety code and statute respectively while thirty wanted better defined standards and/or standardization of policies.

Objective: Ascertain Whether Additional Directives From the State Superintendent's Offices are Necessary to Ensure Proper Understanding and Compliance with the Eye Safety Law.

In Question 33, administrators were asked whether they felt additional directives were needed from the State School Offices. Only thirty six percent of the 578 who answered said yes. A majority of vocational directors said yes, but the majority in all other cases said no.

Of the 210 who felt the need for additional directives, 173 went on to specify items they felt were needed. A large portion of these felt the need for a copy of the American Safety Code (31) or a copy of the eye safety statute (30). An additional thirty felt the need for standardization or for better defined students. Other items mentioned are shown below.

1.	None from the State, but district should provide some	3
2.	Brochures or pamphlets to hand out to students in class	1
3.	To know whether regular prescription lens with safety glass (frames) are adequate	1
4.	Drawings, wall charts, or posters explaining need for eye safety	22
5.	A regular follow-up mailing system to update present materials	13
6.	Films, or better films	10
7.	Periodic mailing of materials just to remind teacher of need	9
8.	Teacher insurance against liability	2
9.	A safety equipment fund to allow procurement of equipment (From State?)	4
10.	Educate parents to make funds available for equipment	2
11.	Safer lens	2
12.	Information on or equipment for cleaning/sanitizing	7
13.	Check-up to see that the law is followed	2
14.	Administrative backing (on local level) to enforce policy	3
15.	Explanation of liability of teachers	1

CONCLUSIONS AND RECOMMENDATIONS

I. Conclusions

a. Too few districts (17 of 34 reported) have formal, written eye safety policies.

b. Too few principals (32 of 107) have formal, written eye safety policies.

c. Too few teachers (147 of 416) have written eye safety policies.

d. Too few administrators (60 percent) have copies of the eye safety law.

e. Too few administrators (75 percent have read the eye safety law.

f. Not enough visual aids (22 percent saw films) are used in introducing the student to the need for eye safety, especially with regard to science students whereonly twelve percent saw films.

g. Verbal warning to a student violator is probably not an effective way to remind student of need for eye safety or to enforce the policy.

h. Too much uncertainty exists as to who is responsible for assuring that the gear purchased meets the minimum ASA standards.

i. Fifteen percent of administrators feel that the equipment available does not provide adequate protection. Seven percent did not feel the variety of equipment available sufficient.

j. Adequate arrangements seem to have been made with regard to furnishing safety eye ware. Even though a significant number of wearers of corrective glasses say no arrangements have been made for them. It is felt that what was meant was that no "special" arrangements had been made other than the furnishing of goggles.

k. Policies in jurisdictions represented by 94 percent of responses meet the standards of the statute as to frequency of wearing of equipment while 80 percent meet the standards set by the superintendent's memorandum. This included 91 percent of industrial arts respondents and 62 percent of science respondents.

l. Only 62 percent of all administrators always comply with established policies, while 17 percent of visitors are not required to wear eye safety devices at all. Thirteen percent of science students and nine and one half percent of industrial arts students said visitors never wear eye safety devices.

m. Eighty percent of industrial arts teachers and 55 percent of science teachers comply with the established policy at all times. This means that one of every five of the former and nearly one of every two of the latter is a violator of the policy to a greater or lesser degree.

n. Forty-two percent of science students and 47 percent of industrial arts students have violated class policy at one time or another, but only six percent of the former and 15 percent of the violators have been penalized therefore.

o. Teachers estimate that between 15-28 eye injuries requiring medical attention have occurred since September, 1965, due to failure of the injured person to wear eye safety equipment.

p. Teachers estimate that 34-62 accidents have occurred during the same period even though the student was wearing eye safety equipment. It appears likely that many of these occurred because the student used equipment not suited for the purpose for which it was used.

q. Teachers felt a minimum of 195 accidents had prevented during the period since 1965 while students felt 1,989 injuries to their own eyes had been prevented by proper use of safety eye ware.

r. The superintendents recommended that "sufficient eye protective devices should be on hand to serve each pupil and teacher in the largest class held in the areas designated" plus additional equipment for visitors. Yet 23 percent of science students answered in the negative to a question regarding whether sufficient equipment was available.

s. At least 80 percent of administrators understand what specific activities require use of eye safety devices. The figures may be higher but further information is not available.

t. The majority of both science and industrial arts teachers indicated that shared eye safety equipment is never sanitized. The teachers who require sanitization after each use amount to only 22 percent of the former and eight percent of the latter.

u. Detergent and warm water is the usual method of sanitizing the equipment which is sanitized.

v. Spectacles with side shields are the most readily available item of eye safety equipment. They are also the most preferred by students.

w. Glass lenses are preferred by a majority of industrial arts teachers while platic lenses are preferred by science teachers.

x. Only 15 percent of administrators had a copy of the American Standard Safety Code for head, eye and respiratory protection while only 24 percent had read it. Twenty three percent had no knowledge whatever of the code.

y. Only 36 percent of administrators felt additional directives were needed, of whom approximately 30 each specified a need for a copy of the statute, a copy of the safety codes and for better defined standards.

II. Recommendations

a. There should be one written policy, from the state--in effect unless changed. Changes should be allowed to fit an individual situation but not to affect major premises of policy.

b. Oral policies should be disapproved--subject to too many variations and oral re-interpretations.

c. Prepare a borchure to contain policy and copy of stature and brief discussion of the teachers possible legal liability for injuries sustained by students in his class.

d. More visual aids, films, posters, relating to safety are needed.

e. More ingenuity needed enforcing the policy such as goggle goon, safety foreman, work transfer, safety test, etc.

f. Purchasing agent at whatever level should be responsible for seeing that equipment meets standards. Condensed relevant portions of American Standard Code should be included in his brochure.

g. Advisors should locate areas in which equipment is felt inadequate and see that it is brought up to standards. (Data processing could provide names of schools, districts, types of class.)

h. Setting higher standards for both groups. Require use for industrial arts students at all times in shop and for science students at least while observing or actively participating in such an activity. This policy should be established by the state office and passed on to the other levels of responsibility

i. Teachers, especially, should be encouraged by officials at all levels to comply with the established policy. On personal visits to the schools, specialists in each area should check teachers for compliance as well as students and visitors.

j. Far too many students have violated class policies either without detection or correction. The teacher should be made aware of his legal liability for injuries to students. But no such inducement should be necessary to teachers since saving an eye of a student is its own reward. Principals should be aware of the number of violations and assure that teachers enforce the policy. Teachers of the classes in which the 15-28 students were injured while violating class policy should be called to account for their own laxity.

k. A list of areas in which accidents have occurred in spite of the use of eye safety equipment should be obtained by the specialists and an investigation made as to whether the equipment was of the right type, or defective, ill-fitting, etc., to allow an accident to occur under such conditions.

l. Sanitization of shared eye safety equipment should be made a part of the new eye safety policy for the state. It should occur after each use and should consist of cleaning in a detergent-warm water solution and/or wiping equipment with a sponge dipped in alcohol.

m. To avoid the trouble and expense of having each administrator and teacher order copies of the safety code, it is suggested that relevant portions be condensed and included as part of the proposed brochure.

n. Some effort should be made to develop a continuing flow of eye safety materials which will be useful to the teacher in impressing upon the students the importance of eye safety. These might be in the form of posters, brochures, pamphlets, wall charts, information on sanitization, but having the primary purpose of keeping the subject of eye safety constantly before both students and teachers, in particular, as well as other administrators and visitors to the shop or laboratory.

APPENDICES

Appendix A: Utah School Eye Safety Statute

B: Items for Superintendents, March 26, 1965

C: Necessity for Disinfection of Shared Glasses

D: Survey of Other State Eye Safety Programs

E: Charts Supporting the Main Report (retained in file, not attached)

Chart	Question
1	TOTALS TABLE
2	Q. 29
3	Q. 1 and 2
4	Q. 3
5	Q. 4 - SQ. 1
6	Q. 5 - SQ. 2
7	Q. 10 - SQ. 6
8	Q. 17 - SQ. 10
9	Q. 18 - SQ. 11
10	Q. 19
11	Q. 26
12	Q. 27
13	Q. 32
14	Q. 7 - SQ. 4 and 8 - SQ. 5 (handwritten)
15	Q. 7
16	Q. 8
17	Q. 15 - SQ. 16
18	Q 16 - SQ. 17
19	SQ. 7
20	SQ. 8
21	SQ. 9
22	Q. 12 - SQ. 13
23	Q. 13 - SQ. 14
24	Q. 14 - SQ. 15
25	SQ. 12
26	Q. 6 - SQ. 3
27	Q. 20 - SQ. 20
28	SQ. 21
29	Q. 21 - SQ. 22
30	Q. 22 - SQ. 18
31	Q. 23 - SQ. 19
32	Q. 24
33	Q. 25
34	Q. 30
35	Q. 31
36	Q. 33

53-1-20. Eye protective devices to be worn in industrial education, physics laboratory and chemistry laboratory activities. Every pupil, teacher and visitor in any public or private school participating in any of the following activities:

(1) Industrial education activities involving experience with:

a) Hot molten metals
b) The operation of machinery or equipment that may throw particles of foreign matter into the eyes.
c) Heat treating, tempering, or kiln firing of any industrial materials
d) Gas or electric are welding
e) Caustic or explosive materials, or

(2) Chemistry or physics laboratories when using caustic or explosive chemicals, and hot liquids or solids, is required to wear industrial quality eye protective devices while participating in activities which may endanger their vision. A board of education shall furnish such devices for pupils and teachers and shall furnish such equipment for all visitors to these laboratories. A board of education may purchase such devices in large quantities and sell them at cost, rent, or purchase such devices in large quantities and sell them at cost, rent, or loan them to pupils and teachers. "Industrial quality eye protective devices", as used in this section, means devices meeting the standards of the American standard safety code for head, eye, and respiratory protection, Z2. 1-1959; promulgated by the American Standards Association, Incorporated.

ITEMS FOR SUPERINTENDENTS

H. B. 25

With the passage of H. B. 25, districts must assume greater responsibility for eye safety in certain industrial education, physics and chemistry laboratory activities. The new law is quite explicit in certain parts yet has some conflicting language within the body of the bill. This lends itself to diversity of opinion and interpretation.

We are taking this opportunity to call to your attention some of the provisions of the law in an effort to clarify certain situations with respect to implementation.

Inasmuch as the law will be effective May 11, 1965, sixty days following the close of the legislative session, it would seem particularly advantageous for superintendents to become thoroughly conversant with it and to take steps to implement it.

We feel the law does not intend that every pupil, teacher and visitor shall wear glasses at all times while in certain industrial education or physics and chemistry laboratories but shall wear them when engaged in any activity in which there is danger to the eye from flying objects, foreign matter or explosions. This would include those pupils, teachers or visitors who are actively participating in an activity within a proximity where any possible danger exists.

Since eye protective devices must be available to each pupil, teacher and visitor within the classes or laboratories defined in the law, districts should go far beyond the mere hanging of a pair of goggles on a machine for use by a pupil while he is working at that station. Sufficient eye protective devices should be on hand to serve each pupil and teacher in the largest class held in the areas designated. Further additional devices should be on hand to issue to visitors, including pupil or teacher visitors, as the occasion may dictate.

Despite the use of the term "furnish" with regard to the board's responsibility for providing eye glasses we conclude that it is within a board's prerogative to sell at cost, rent, or loan them to students and teachers. Because of the awkwardness of the situation those devices used by visitors should be and remain the property of the district to be used by visitors as they enter designated areas. Where pupils purchase their own protective devices provisions should be made to have such equipment so it will be readily available for use by the pupil. If such a

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provision is not made and the pupil carries his protective equipment with him, teachers should make certain the pupil brings his equipment to each class where activities will likely require its use.

The law states that the eye protective devices shall meet the standards of the American Standard Safety Code as promulgated by the American Standards Association, Incorporated. In purchasing appropriate equipment you may procure a copy of the code by writing to the American Standard Association, Incorporated, 70 East 45th Street, New York, N.Y. Suppliers of eye safety devices should also be able to provide you with needed information.

When dealing with local suppliers, we would urge, however, that you satisfy yourself that the devices meet the standards before you purchase.

We urge you to take all necessary precautions in an effort to avert eye damage or loss among your students and teachers.

NECESSITY FOR DISINFECTING SHARED EYE GLASSES/GOGGLES

In an effort to gain some professional opinions about the possible communicability of eye and/or skin diseases through the use of the same pair of eye glasses or goggles by different students without an intermediate cleansing of the eye wear, I contacted the following professional people at their offices by phone:

Dr. Douglas G. Bischoff, Salt Lake City Optometrist
Dr. Gerald H. Bagley, Salt Lake City Optometrist
Dr. H. H. Bartholomew, Salt Lake City Eye Physician and Surgeon
Dr. Lewis W. Kirkman, Salt Lake City Dermatologist
Dr. Robert W. Sherwood, Utah Department of Health

During the course of the telephone interview, I asked the following previously prepared questions which had been written out for the purpose:

1. Are there communicable eye diseases? Yes/No. (Unanimous response was yes.)

2. Can these diseases be passed from one person to another if they have occasion to use the same eye glasses, as in a school eye safety programs? Yes/No (The Unanimous response was yes.)

3. What is the possibility of such a communicable eye disease actually being passed on to another student? Very High, High, Low, Almost none. (Unanimous response was low after being asked the question, but the spontaneous reply which was given by a majority of the respondents before I had asked the question was that the possibility was "very remote."

4. Is detergent and warm water an acceptable method of eliminating the possibility of communicating an eye or skin disease to another person? (The unanimous response was Yes, but the eye or goggles should also be wiped off with a sponge containing alcohol to be completely safe.

The dermatologist contacted suggested that impetigo should be obvious to the teacher (or at least it should be obvious that something was wrong with a student who had impetigo) and that the teacher should automatically take precautions to assure that no one else wore an eye covering which had previously been used by such a student. If use was made of such an eye covering without sterilization, the possibility of the second user contacting impetigo was very strong. He further stated that other skin infection were less contagious and a washing in detergent and warm water would be sufficient to alleviate the possibility of contagion of the infection.

When the physician from the Utah State Board of Health was questioned regarding the best method of sanitizing share eye safety devices and given a list containing all methods mentioned by the American Standard Safety Code for Head, Eye and Respiratory Protection, plus infrared light, and detergent and warm water, he suggested that detergent and warm water would be the most practical and most used, hence, the best method of cleaning for the school situation.

The conclusion drawn by the investigator was that the possiblity of passing on a skin or eye infection is very remote, but that since washing with detergent, rinsing and wiping dry is such a simple, yet thoroughly acceptable method of cleaning the eye safety devices and wiping out even the small possibility of contagion, this method of cleansing should be adopted and used by all classes where shared eye safety devices are used. The additional precaution of wiping with an alcohol-soaked sponge should be used optionally, and where there is an obvious eye infection (i.e., pink eye) additionally.

SURVEY OF SCHOOL EYE SAFETY PROGRAMS IN STATES OTHER THAN UTAH

INTRODUCTION:

During the first week of November, 1968, the principal investigator sent to the director of the Research Coordinating Unit of each of the other forty-nine states a letter requesting information on their school eye safety program, if any, including a copy of the state statute, and any directives or policy statements which were sent with it to educators, and any written material produced to explain or clarify the law or program.

Replies were received from thirty states of which fifteen had enacted school eye safety legislation. Texas and Wisconsin, respectively, sent a copy of a statute relating to reporting school accidents and a copy of the Workman's Compensation Act and directives from the State Industrial Commission requiring the use of eye safety devices in industry. It was assumed that no other legislation on the subject existed in either state. The reply from Hawaii indicated that most vocational-technical schools of the state required use of protective devices, but that there was no statewide policy or legislation on the subject. New Mexico sent a draft of a directive from the State Board of Education which was very much germane, and which had been tentatively adopted by the State Board with final adoption merely awaiting review by the Board's attorney.

A number of states indicated that legislation had recently been considered by their state legislatures, but not adopted, or that such legislation was now pending and would be considered by the next legislature.

The fifteen answering states which had school eye safety laws represent 55.6 percent of the twenty-seven state (according to the National Society for the Prevention of Blindness, Inc.) which had adopted such laws by September, 1968.

SUMMARY OF THE SCHOOL EYE SAFETY LAW OF FIFTEEN STATES:

The following is not a legal analysis of the legislation in question, nor was it intended to be such. The conclusions drawn are those of a layman, and are taken from the wording of the statutes without consideration being given to any legal connotations or multiple definitions of terms.

The statutes considered herein are those of the following states: Arizona, Arkansas, Connecticut, Florida, Illinois, Kansas, Maryland, Minnesota, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island, and Wyoming.

Chart Number 1.

QUESTIONNAIRE ON EYE SAFETY POLICY IN UTAH SCHOOLS
TOTAL TABLE

	GROUP I	GROUP II	GROUP III	TOTAL
Superintendent	1	3	11	15
Principal	64	22	31	117
Director	8	6	4	18
Science Teacher	156	46	37	239
Industrial Arts Teacher	163	48	38	249
Total Administration	392	125	121	638

	GROUP I	GROUP II	GROUP III	TOTAL
Science Student	520	158	166	844
Industrial Arts Student	819	229	214	1262
Total Students	1339	387	380	2106

Chart Number 2

Administration Question 29: Whether or not you have a copy of the Eye Safety Act, have you read it?

GROUP I

	Supt.	Princ.	Direct.	Science Teacher	I. A. Teacher	TOTAL
Yes	0	47	6	80	145	278
No	1	5	2	62	12	82
No response	0	12	0	14	6	32

GROUP II

	Supt.	Princ.	Direct.	Science Teacher	I. A. Teacher	TOTAL
Yes	3	16	2	22	39	82
No	0	2	1	22	4	29
No response	0	4	3	2	5	14

GROUP III

	Supt.	Princ.	Direct.	Science Teacher	I. A. Teacher	TOTAL
Yes	0	18	3	16	30	67
No	0	6	1	20	8	35
No response	11	7	0	1	0	19

Chart Number 3.

Question 1: Does the school district have a written eye safety policy which has been disseminated to each school in the district?

	GROUP I		GROUP II		GROUP III		TOTAL
	yes	no	yes	no	yes	no	
Superintendent	1	0	2	1	4	7	15
Director	2	2	1	0	2	0	7

Question 2: If the district has no written eye safety policy, has the school a written policy which has been disseminated to all relevant teachers?

Principals only	GROUP I	GROUP II	GROUP III	TOTAL
Yes	21	6	5	32
No	9	3	8	20
District has a policy	20	8	7	35
Teacher sets own policy	3	1	6	10

Chart Number 4.

Question 3: If there is no school or district policy, do you as a teacher have a written eye safety policy for your classes?

GROUP I

	Science Teachers	Industrial Arts Teachers	Total
Yes	38	64	102
No	55	24	79
District has a policy	32	44	76
School has a policy	6	1	7

GROUP II

	Science Teachers	Industrial Arts Teachers	Total
Yes	7	17	24
No	18	12	40
District has a policy	13	13	26
School has a policy	1	2	3

GROUP III

	Science Teachers	Industrial Art Teachers	Total
Yes	6	15	21
No	25	10	35
District has a policy	3	7	10
School has a policy	2	1	3

Chart Number 5.

Administration Question 4: How is information concerning the eye safety policy disseminated to students?

Student Question 1: How were you informed of the class policy relating to the wearing of safety glasses in the shop lab?

GROUP I

	Princ.	Sci. Teacher	I.A. Teacher	Sci Student	I.A. Student	Total
Lesson/lecture on safety	34	108	102	269	531	1044
Safety film	0	0	1	15	22	38
Both of the above	27	14	53	44	231	369
Other	2	22	2	83	27	136
Not informed of eye safety policy	0	0	0	98	4	102
Totals	63	144	158	509	815	

GROUP II

	Princ.	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Lesson/lecture on safety	12	30	37	82	165	326
Safety film	0	0	0	3	3	6
Both of the above	9	7	9	14	56	95
Other	1	6	0	19	2	28
Not informed of eye safety policy	0	0	0	39	3	42
Totals	22	43	46	157	229	

GROUP III

	Princ.	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Lesson/lecture on safety	20	32	29	92	159	332
Safety film	0	0	0	1	6	7
Both of the above	8	2	8	21	39	78
Other	2	1	0	33	8	44
Not informed of eye safety policy	0	0	0	17	1	18
Totals	30	35	37	164	213	

TOTAL: ALL GROUPS 115 222 241 840 1257

Chart Number 6.

Administration Question 5: Since the eye safety policy was orginally disseminated to students, what methods have you used to remind the students of the policy?

Student Question 2: Since your introductory safety information was given you, have there been further reminders during the school year concerning eye safety?

GROUP I

	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Total
Further lessons/lectures	24	85	57	186	352
Verbal reminders from teacher	118	147	299	685	1249
Posters in shop or lab	27	116	95	487	725
Periodic tests or examinations	2	40	14	91	147
Other	6	19	19	36	80
No reminders have been given	17	0	129	21	167
Totals	194	407	613	1506	

GROUP II

	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Total
Further lessons/lectures	10	24	14	46	94
Verbal reminders from teacher	33	44	87	194	358
Posters in shop or lab	7	32	23	122	184
Periodic tests or examinations	2	11	3	20	36
Other	2	2	4	11	19
No reminders have been given	9	0	46	1	56
Totals	63	113	177	394	

GROUP III

	Sci Teachers	I.A. Teachers	Sci. Students	I.A. Students	Total
Further lessons/lectures	10	18	30	51	109
Verbal reminders from teacher	35	38	117	187	377
Posters in shop or lab	6	27	16	96	145
Periodic tests or examinations	0	8	0	5	13
Other	2	0	4	4	10
No reminders have been given	1	0	32	2	35
Totals	54	91	199	345	

TOTAL: ALL GROUPS 311 611 989 2245

Chart Number 7.

Administration Question 10: What methods are used to enforce eye safety policy?

Student Question 6: What are the methods of enforcing the class eye safety policy?

GROUP I	Directors	Sci. Teachers	I.A. Teachers	Supt.	Princ.	Sci. Student	I.A. Student	Total
Verbal warning	5	123	150	1	47	287	636	1249
Grade lowered	1	14	34	0	10	49	194	302
Trasferred/dismissed from class	1	7	27	0	13	23	93	164
Use of facilities restricted	2	46	98	0	36	67	247	496
Reward for most safety conscious stu.	0	2	1	0	3	11	16	33
Comp of safety test (Admin)	3	1	58	0	18			80
Other	0	3	6	0	2	30	77	118
None (Admin)	0	16	2	0	0			18
No enforcement (Student)						67	12	79
Do not know (Student)						82	28	110

GROUP II	Directors	Sci. Teachers	I.A. Teachers	Supt.	Princ.	Sci. Student	I.A. Student	Total
Verbal warning	2	35	48	2	17	92	192	388
Grade lowered	0	4	12	0	3	25	48	92
Transferred/dismissed from class	1	5	5	1	4	9	32	57
Use of facilities restricted	2	11	21	1	9	23	54	121
Reward for most safety conscious stu.	0	3	3	0	0	7	1	14
Comp of safety test (Admin)	2	4	8	0	4			18
Other	0	0	1	0	0	5	8	14
None (Admin)	0	8	0	0	0			8
No enforcement (Student)						20	1	21
Do not know (Student)						26	6	32

GROUP III	Directors	Sci. Teachers	I.A. Teachers	Supt.	Princ.	Sci. Student	I.A. Student	Total
Verbal warning	2	33	38	4	22	121	172	292
Grade lowered	0	1	10	0	1	15	43	70
Trasferred/dismissed from class	0	2	9	0	3	12	19	45
Use of facilities restricted	0	12	19	1	13	29	68	142
Reward for most safety concious stu.	0	0	0	0	1	1	2	4
Comp of safety test (Admin)	1	0	6	0	6			13
Other	0	1	0	2	2	6	7	18
None (Admin)	0	1	0	1	1			3
No enforcement (Student)						12	4	16
Do not know (Student)						18	4	22

Chart Number 8.

Administration Question 17: How are safety spectacles/goggles made available to students?

Student Question 10: How is protective eye wear made available for your use in the shop or lab?

GROUP I	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Purchased by student from school	0	40	7	24	91	130	428	720
Purchased by student from other source	0	0	0	2	1	5	15	23
Rented from school	0	2	0	1	9	7	58	77
Loaned for exclusive use for course	0	2	0	18	11	36	74	141
Loaned just for class period	0	14	1	63	38	205	185	506
Available at work stations	1	1	1	24	11	74	55	167

GROUP II	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Purchased by student from school	3	10	3	6	19	29	84	154
Purchased by student from other source	0	1	0	0	1	1	3	6
Rented from school	0	1	1	2	2	5	18	29
Loaned for exclusive use for course	0	5	0	4	9	14	28	60
Loaned just for class period	0	1	1	14	12	59	64	151
Available at work stations	0	2	0	15	4	27	30	78

GROUP III	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Purchased by student from school	3	13	1	6	15	31	65	134
Purchased by student from other source	0	2	0	1	1	2	8	14
Rented from school	1	0	0	1	0	2	11	15
Loaned for exclusive use for course	2	4	0	12	8	31	37	94
Loaned just for class period	0	2	1	8	9	71	64	155
Available at work stations	0	4	2	5	4	18	28	61

Chart Number 9.

Administration Question 18: What provisions are made for students who were corrective eyewear?

Student Question 11: If you wear prescription glasses, tell what arrangements are made for your safety eye wear.

GROUP I	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Required to have prescription glasses	0	21	2	10	71	21	166	291
Prescriptions provided by school	0	1	0	0	0	7	10	18
Cover goggles provided	1	53	7	105	122	192	293	773
No provisions made	0	1	0	26	5	98	61	191
Other	0	3	1	12	11	60	62	149

GROUP II	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Required to have prescription glasses	0	2	2	3	18	5	43	73
Prescriptions provided by school	0	0	0	1	1	2	2	6
Cover goggles provided	3	14	4	33	31	48	105	238
No provisions made	0	3	0	10	2	49	17	81
Other	0	2	0	1	2	9	8	22

GROUP III	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Required to have prescription glasses	2	5	1	0	6	4	27	45
Prescriptions provided by school	1	0	0	0	1	0	4	6
Cover goggles provided	4	19	2	26	31	57	71	210
No provisions made	3	4	1	6	2	23	9	48
Other	0	0	0	1	2	30	14	47

Chart Number 10.

Administration Question 19: Who in your school district selected the protective eye wear to be used?

GROUP I

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Total
District/Superintendent's office	0	37	3	54	82	176
School/Principal's office	0	18	1	14	19	52
Teachers	0	29	5	42	81	157
Student/Parent	0	1	0	0	4	5
Other	1	7	2	22	16	48

GROUP II

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Total
District/Superintendent's office	2	14	2	20	23	61
School/Principal's office	2	6	0	8	5	21
Teachers	1	8	2	16	22	49
Student/Parent	0	0	0	0	2	2
Other	1	0	1	5	6	13

GROUP III

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Total
District/Superintendent's office	7	12	4	10	16	49
School/Principal's office	5	10	1	5	6	27
Teachers	5	16	0	14	22	57
Student/Parent	0	0	0	0	1	1
Other	0	0	0	0	0	0

Chart Number 11.

Administration Question 26: Do you feel that the eye safety equipment available in the labs or shops adequately meets the needs of users as far as protection is is concerned? If not, what else is needed?

GROUP I

		Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Protection is adequate		1	56	7	128	135	327
Protection is inadequate.	We need:	0	5	1	18	26	50

GROUP II

		Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Protection is adequate		1	18	4	37	41	101
Protection is inadequate.	We Need:	1	4	1	7	7	20

GROUP III

		Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Protection is adequate		6	23	3	34	27	93
Protection is inadequate.	We need:	3	7	1	3	10	24

Chart Number 12.

Administration Question 27: Do you need particular types of protective eye wear for your activities which are not available in the shop or lab?

GROUP I

	Science Teachers	Industrial Art Teachers	Total
Yes. We need:	9	8	17
No	130	148	278

GROUP II

	Science Teachers	Industrial Art Teachers	Total
Yes. We need:	2	3	5
No	41	42	83

GROUP III

	Science Teachers	Industrial Art Teachers	Total
Yes. We need:	2	7	9
No	33	31	64

Chart Number 13.

Administration Question 32: Who is responsible for assuring that the Protective eye wear purchased for use in the district conforms to the requirements of the American Safety Code?

GROUP I

	Supt.	Princ.	Direct	Sci. Teacher	I.A. Teacher	Total
District	0	42	3	80	100	225
School	0	21	1	24	23	69
Teacher	0	15	4	36	57	112
Student/parent	0	1	0	4	2	7
Other	1	2	2	15	14	34

GROUP II

	Supt.	Princ.	Direct	Sci. Teacher	I.A. Teacher	Total
District	2	14	4	20	20	60
School	2	7	1	9	5	24
Teacher	1	0	1	7	22	31
Student/parent	0	0	0	0	0	0
Other	1	0	0	6	6	13

GROUP III

	Supt.	Princ.	Direct	Sci Teacher	I.A. Teacher	Total
District	7	13	2	14	16	52
School	6	8	1	9	4	28
Teacher	3	15	1	12	21	52
Student/parent	0	1	0	0	1	2
Other	0	0	1	6	2	9

Chart Number 14.

Totals of Administration Question 7

	Supt.	Princ.	Directors	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Totals
Machinery that sparks	13	65	16	4	238	62	1091	1489
Hot molten metals	9	69	12	11	62	64	272	499
Caustic or explosive materials	13	91	12	143	45	401	125	830
Hot liquids or solids	13	89	13	158	68	420	289	1050
Gas or electric welding	13	106	16	3	130	39	478	785
Heat treating or tempering operations	12	74	14	16	70	157	257	600

Totals of Administration Question 8

	Supt.	Princ.	Directors	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Totals
Machinery that sparks	12	109	16	33	242	141	1179	1732
Hot molten metals	8	66	12	44	98	128	419	775
Caustic or explosive materials	12	83	13	153	88	413	313	1075
Hot liquids or solids	10	82	14	158	98	360	420	1142
Gas or electric welding	12	99	16	29	158	104	624	1042
Heat treating or tempering operations	10	74	15	40	107	162	403	811

Chart Number 15.

Administration Question 7: Which of the following activities are performed in your class/school/district?

Student Question 4: Which of the following activities are performed in the class for which you are completing this questionnaire?

GROUP I

	Supt.	Princ.	Directors	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Totals
Machinery that sparks	1	22	8	3	157	40	690	921
Hot molten metals	1	42	7	7	41	35	169	302
caustic or explosive materials	1	49	6	85	35	211	88	475
Hot liquids or solids	1	51	7	100	45	248	195	647
Gas or electric welding	1	63	8	2	80	33	282	469
Heat treating or tempering operations	1	43	7	9	43	107	144	354
None of the above	0	0	0	33	6	153	91	283

GROUP II

	Supt.	Princ.	Directors	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Totals
Machinery that sparks	3	15	4	1	44	13	208	288
Hot molten metals	3	13	3	2	10	13	53	97
Caustic or explosive materials	3	15	3	30	4	83	23	161
Hot liquids or solids	3	15	3	28	14	79	58	200
Gas or electric welding	3	15	4	1	20	2	80	125
Heat treaing or tempering operations	3	10	3	4	13	29	64	126
None of the above	0	0	1	8	3	37	16	65
Totals	18	83	21	74	108	256	502	

GROUP III

	Supt.	Princ.	Directors	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Totals
Machinery that sparks	9	28	4	0	37	9	193	280
Hot molten metals	5	14	2	2	11	16	50	100
Caustic or explosive materials	9	27	3	28	6	107	14	194
Hot liquids or solids	9	23	3	30	9	93	36	203
Gas or electric welding	9	28	4	0	30	4	116	191
Heat treating or tempering operations	8	21	4	3	14	21	49	120
None of the above	0	0	0	5	0	41	12	58

QUESTIONNAIRE FOR ADMINISTRATORS AND TEACHERS ON EYE SAFETY POLICY IN UTAH SCHOOLS

INSTRUCTIONS:

Circle the number appearing before the response you have chosen. Several of the questions may require multiple responses, in which case, circle all that are applicable. If you select a response which is followed by a space for further explanation, please give a brief and concise explanation of your answer.

Please do not circle the answer to the question; circle only the number corresponding to the alternative answer you choose. Except where otherwise indicated, each respondent should answer all questions, regardless of position.

GENERAL INFORMATION:

All Respondents:

Name of the School District: ____________________

Name of the school, if teacher or principal: ____________________

Position of Respondent:

1. District Superintendent
2. Senior High School Principal
3. Junior High School Principal
4. Teacher of General Science, Junior High
5. Teacher of Chemistry
6. Teacher of Physics
7. Teacher of Industrial Arts, Senior High
8. Teacher of Industrial Arts, Junior High
9. Local Director or Supervisor of Industrial Arts

Teachers Only:

My largest class has:

1. 1-19 students
2. 20-29 students
3. 30-39 students
4. 40-49 students
5. 50 or more students

Industrial Arts Teachers Only:

The industrial arts area in which I teach is:

1. Drafting
2. Crafts
3. Metals
4. Auto Mechanics
5. Woods
6. Electronics-Electricity
7. General Shop (Senior High)
8. Industrial arts, general (Junior High)
9. Other ____________________

EYE SAFETY PROGRAM:

1. Does the school district have a written eye safety policy which has been disseminated to each school in the district? (Superintendents respond).

    1. Yes
    2. No

2. If the district has no written eye safety policy, has the school a written policy which has been disseminated to all relevant teachers? (Principals respond)

    1. Yes
    2. No
    3. District has a policy
    4. Each teacher sets the policy for his classes

3. If there is no school or district policy, do you as a teacher have a written eye safety policy for your classes? (Teachers only respond)

    1. Yes
    2. No
    3. District has a policy
    4. School has a policy

4. How is information concerning the eye safety policy disseminated to students? (Principals and Teachers only respond)

    1. Lesson/lecture on safety
    2. Safety film
    3. All of the above
    4. Other ________________

5. Since the eye safety policy was originally disseminated to students, what methods have you used to remind the students of the policy? (Teachers respond)

    1. Through further lessons/lectures
    2. Through verbal reminders from the teacher
    3. Through posters in the shop or lab
    4. Through periodic safety tests or examination questions
    5. Other. Explain: ________________
    6. No reminders have been given

6. Under the policy followed in your class/school/district, when are students required to wear protective eye wear?

    1. At all times in the shop or lab area
    2. Whenever engaged in or observing an activity requiring them
    3. Only when actually engaged in an activity requiring them
    4. Use of protective eye wear is not required

7. Which of the following activities are performed in your class/school/district?

    1. Operation of machinery which may emit sparks or particles of foreign matter
    2. Handling of hot molten metals
    3. Handling caustic or explosive chemicals/materials
    4. Handling of hot liquids or solids
    5. Gas or electric arc welding
    6. Heat treating or heat tempering operations
    7. All of the above
    8. None of the above

8. Of the activities mentioned above which are performed, indicate below those which require the use of eye safety devices.

    1. Operation of machinery which may emit sparks or particles of foreign matter
    2. Handling of hot molten metals
    3. Handling caustic or explosive chemicals/materials
    4. Handling of hot liquids or solids
    5. Gas or electric arc welding
    6. Heat treating or heat tempering operations
    7. All of the above

9. How many pairs of eye safety spectacles/goggles are available to students in your shop/lab? (Teachers only)

    1. Students have own personal eye protection
    2. 0-19 pairs
    3. 20-29 pairs
    4. 30-39 pairs
    5. 40-49 pairs
    6. 50 or more pairs

10. What methods are used to enforce eye safety policy?

    1. Verbal warning
    2. Grade lowered
    3. Transferred/dismissed from class
    4. Use of lab or shop facilities and equipment restricted
    5. Reward for the most safety conscious student
    6. Successful completion of safety test
    7. Other
    8. None

11. On what level(s) are safety records kept which record injuries to eyes of students, teachers or visitors? (Multiple responses acceptable)

    1. No record is kept
    2. Class records
    3. Department records
    4. School records
    5. District-wide records

12. How many students in your class/school/district have received an injury requiring medical attention due to failure to use protective eye wear since September 1965?

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10
    6. Unknown

13. How many students in your class/school/district have received an injury requiring medical attention even though using safety eyewear since September 1965?

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10

14. How many instances have there been in your classes since September 1965 where eye injuries have been prevented because students were wearing protective eye wear? (Only teachers need respond)

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10
    6. Unknown

15. When are visitors required to wear eye protective devices?

    1. At all times when in the lab/shop area
    2. When engaged in or directly observing an activity requiring them
    3. Only when engaged in an activity requiring them
    4. Use by visitors not required

16. Do you as a teacher/administrator/local director always comply with the same policy required of your students with regard to the use of eye safety glasses?

    1. Always
    2. Usually, but not always
    3. Sometimes, but not usually
    4. Never

17. How are safety spectacles/goggles made available to students?

    1. Purchased by student from school at cost
    2. Purchased by student from a source other than the school
    3. Rented from the school
    4. Loaned for exclusive use throughout the course
    5. Loaned just for the class period in which they are used
    6. Made available at the work stations for those working there

18. What provisions are made for students who wear corrective eyewear?

    1. Each student obtains his own prescription safety glasses
    2. Prescription glasses are provided by school or district
    3. Cover goggles are provided for use over regular glasses
    4. No provisions made
    5. Other ______________________________

19. Who in your school district selected the protective eye wear to be used?

    1. District/Superintendent's office
    2. School/Principal's office
    3. Teachers
    4. Student/parent
    5. Other ______________________________

20. If eye safety wear is shared by more than one user, how often are they sanitized?

    1. After each use
    2. Daily
    3. Weekly
    4. Monthly
    5. Never
    6. Not shared

21. If eye wear is shared and sanitized periodically, what is the method used for sanitization? (Teachers only)

    1. Detergent and warm water
    2. Immersion in formaldehyde solution for 10 minutes
    3. Immersion in phenolic, hypochlorite or ammonium solution for 10 minutes at room temperature
    4. Subjection to a moist atmosphere of formaldehyde for 10 minutes at room temperature
    5. Infrared lamp
    6. Sulphuric acid
    7. Other ______________________________
    8. Not shared
    9. Not sanitized

22. Check the types of protective eye wear available in your shop or lab. (Teachers)

    1. Safety spectacles with glass lenses and side shields
    2. Safety spectacles with glass lenses but without side shields
    3. Safety spectacles with plastic lenses and side shields
    4. Safety spectacles with plastic lenses but without side shields
    5. Chipper model goggles providing protection against flying objects
    6. Dust and splash model goggles providing protection against relatively fine particles of dust as well as protection from chemical or liquid splash
    7. Welder and cutter model goggles for filtering out harmful light rays
    8. Face shield for protection against heat, splash and flying objects
    9. Other ______________________________

23. Of the nine alternatives listed in question 22, which type of safety eye wear will students wear most readily and willingly? (Teachers only)

    1. 2. 3. 4. 5. 6. 7. 8. 9.

24. Of the nine alternatives listed in questions 22 and 23, which type do you, as a teacher, most prefer and recommend to students for the activities participated in by your class? (Teachers only) 1. 2. 3. 4. 5. 6. 7. 8. 9.

25. As between goggles and safety spectacles with plastic lenses and safety spectacles with glass lenses, which do you prefer for amount of protection given and durability? (Teachers only)

    1. Spectacles/goggles with plastic lenses
    2. Goggles with plastic lenses
    3. Spectacles with plastic lenses
    4. Spectacles with glass lenses
    5. No preference.

26. Do you feel that the eye safety equipment available in the labs or shops adequately meets the needs of users as far as protection is concerned? If not, what else is needed? (All respond)

    1. Protection is adequate.
    2. Protection is inadequate. We need: ______________________________

27. Do you need particular types of protective eye wear for your activities which are not available in the shop or lab? (Teachers only)

1. Yes. We need:____
2. No

28. Do you have a copy of the Utah Eye Safety Act of 1965?

1. Yes
2. No

29. Whether or not you have a copy of the Eye Safety Act, have you read it?

1. Yes
2. No

30. Have you a copy of the American Standard Safety Code for Head, Eye and Respiratory Protection (hereafter referred to as the American Safety Code)?

1. Yes
2. No

31. Have you read the American Standard Safety Code, regardless of whether or not you have a copy?

1. Yes
2. No
3. Have no knowledge of it

32. Who is responsible for assuring that the protective eye wear purchased for use in the district conforms to the requirements of the American Safety Code?

1. District
2. School
3. Teacher
4. Student/parent
5. Other. Explain ____

33. Do you feel that additional directives are needed on eye safety from the State School offices?

1. Yes. We need: ____
2. No

THANK YOU!

QUESTIONNAIRE FOR STUDENTS
ON EYE SAFETY POLICY IN UTAH SCHOOLS

PART I:

GENERAL INFORMATION:

Name of School________________________________

Type of class in which questionnaire is completed:
( ) Chemistry
( ) Physics
( ) Industrial Arts, Senior High
( ) Industrial Arts, Junior High
( ) General Science, Junior High

Name of Class in which questionnaire is completed: ____________________

PART II:

EYE SAFETY PROGRAM:

Instructions: Please circle the number appearing before the answer which you feel best answers the question. If more than one response seems appropriate, circle all that are applicable. Where lines are provided for that purpose, write in an explanation of your answer, if requested. Do not guess. If you do not know an answer, leave that particular one blank. Thank you.

1. How were you informed of the class policy relating to the wearing of safety glasses in the shop/lab?

   1. Lesson/lecture on safety
   2. Safety film
   3. Both of the above
   4. Other________________________________
   5. Have not been informed of an eye safety policy

2. Since your introductory safety information was given you, have there been further reminders during the school year concerning eye safety?

   1. Through further lessons/lectures?
   2. Through verbal reminders from the teacher?
   3. Through safety posters in the shop or lab?
   4. Periodic tests on safety?
   5. Other? Explain: ________________________
   6. No reminders have been given.

3. According to the class policy, when are you required to wear safety glasses/goggles?

   1. At all times in the shop/lab area
   2. Whenever engaged in or observing an activity requiring them
   3. Only when engaged in an activity requiring them
   4. Use of protective eye wear not required

4. Which of the following activities are performed in the class for which you are completing this questionnaire?

   1. Operation of machinery which may emit sparks or particles of foreign matter
   2. Handling of hot molten metals
   3. Handling caustic or explosive chemicals/materials
   4. Handling of hot liquids or solids
   5. Gas or electric arc welding
   6. Heat treating or heat tempering operations
   7. All of the above
   8. None of the above

5. Of the activities mentioned in question 4 as being performed in your class, indicate below those during which the use of safety eye glasses is required according to class policy on eye safety:

   1. Operation of machinery which may emit sparks or particles of foreign matter
   2. Handling of hot molten metals
   3. Handling caustic or explosive chemicals/materials
   4. Handling hot liquids or hot solids
   5. Gas or electric arc welding
   6. Heat treating or heat tempering operation
   7. All of the above
   8. None of the above

6. What are the methods of enforcing the class eye safety policy?

   1. Verbal warning
   2. Grade lowered
   3. Transferred/dismissed from class
   4. Use of lab/shop equipment or facilities restricted
   5. Reward for the most safety conscious student as incentive to others
   6. Other ____
   7. No enforcement methods used
   8. Do not know

7. Do you comply with the eye safety policy of the class as you understand it?

   1. Always
   2. Most of the time but not always
   3. Sometimes but not most of the time
   4. Never

8. Have you been penalized for not complying with class eye safety policy?

   1. Yes
   2. No

9. Have you been rewarded for complying with class eye safety policy?

   1. Yes
   2. No

10. How is protective eye wear made available for your use in the shop or lab?

    1. Purchased by student from school at cost
    2. Purchased by student from a source other than the school
    3. Rented from the school
    4. Loaned to you for your exclusive use throughout the course
    5. Loaned to you just for the class period in which you use them
    6. Made available at the work stations for those working there

11. If you wear prescription glasses, tell what arrangements are made for your safety eye wear.

    1. Required to have my own prescription safety glasses
    2. Prescription glasses are provided by the school or district
    3. Cover goggles are provided for use over regular glasses
    4. No provisions made
    5. Other. Explain: ______________________________

12. Are there enough pairs of safety glasses or goggles in the shop/lab that every student in the class could work on an activity requiring eye protection during the same class period and be provided with the necessary protective eye wear?

    1. Yes
    2. No

13. How many students in your class this year have received eye injuries requiring medical attention while not wearing protective eye wear?

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10
    6. Unknown

14. How many students in your class this year have received eye injuries requiring medical attention even though they were wearing protective eye wear?

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10
    6. Unknown

15. How many times has the use of protective eye wear prevented an accident to your own eyes?

    1. None
    2. 1-2
    3. 3-4
    4. 5-10
    5. More than 10

16. When do visitors wear safety glasses/goggles?

1. Whenever in the shop/lab
2. Whenever engaged in or observing an activity requiring them
3. Only when engaged in an activity requiring them
4. Never
5. Do not know

17. Does your teacher comply with the same safety requirements as students?

1. Always
2. Most of the time but not always
3. Sometimes but not most of the time
4. Never

18. Indicate the types of protective eye wear available to you in the shop or lab.

1. Safety spectacles with glass lenses and side shields
2. Safety spectacles with glass lenses but without side shields
3. Safety spectacles with plastic lenses and side shields
4. Safety spectacles with plastic lenses but without side shields
5. Chipper model goggles providing protection against flying objects
6. Dust and splash model goggles providing protection against relatively fine dust particles and liquid or chemical splash
7. Welder and cutter model goggles for filtering out harmful light rays
8. Face shield for protection against heat, splash and flying objects
9. Other. Explain: ____

19. Which of the nine (9) alternatives listed in question 18 that are available to you do you prefer to use?

1. 2. 3. 4. 5. 6. 7. 8. 9.

INSTRUCTIONS FOR QUESTIONS 20-22:
CHEMISTRY, PHYSICS AND GENERAL SCIENCE STUDENTS: Respond if, and only if, the safety eye wear used by you during a class period is shared by another (or other) student(s) during the same class period or the same class day. If you have borrowed or rented your own eye wear and it is never used by anyone else, you need not answer questions 20-22.

INDUSTRIAL ARTS STUDENTS: Do not answer questions 20-22.

20. How often are the shared safety glasses/goggles sanitized?

1. After each use/class period
2. Daily
3. Weekly
4. Monthly
5. Other ______________________________
6. Not sanitized

21. Who actually sanitizes the safety glasses/goggles?

1. Students who use them
2. Teacher
3. Other ________________________________
4. Do not know

22. If eye wear is shared and sanitized periodically, what is the method used for sanitization?

1. Detergent and warm water
2. Immersion in formaldehyde solution for 10 minutes
3. Immersion in phenolic, hypochlorite or ammonium solution for 10 minutes at room temperature
4. Subjection to a moist atmosphere of formaldehyde for 10 minutes at room temperature
5. Infrared lamp
6. Sulphuric acid
7. Other. Explain ________________________________
8. Not shared
9. Not sanitized

THANK YOU!

Chart Number 10.

Administration Question 8: Of the activities mentioned above which are performed, indicate below those which require the use of eye safety devices.

Student Question 5: Of the activities mentioned in question 4 as being performed in your class, indicate below those during which the use of safety eye glasses is required.

GROUP I

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
Machinery that sparks	0	65	8	25	157	92	765	1112
Hot molten metals	0	40	7	32	69	75	292	515
Caustic or explosive materials	0	45	6	95	69	227	240	682
Hot liquids or solids	0	49	7	105	70	208	302	741
Gas or electric welding	0	59	8	22	104	66	409	668
Heat treating or tempering operations	0	43	7	29	72	109	274	534
None of the above	0	0	0	0	0	147	33	180

GROUP II

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
Machinery that sparks	3	16	4	2	47	24	210	303
Hot molten metals	3	14	4	5	15	24	53	118
Caustic or explosive materials	3	16	4	32	10	83	34	182
Hot liquids or solids	3	15	4	25	16	72	60	195
Gas or electric welding	3	15	4	2	22	18	85	149
Heat treating or tempering operations	3	12	4	5	17	26	64	131
None of the above	0	0	0	0	0	45	8	53

GROUP III

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
Machinery that sparks	9	28	4	6	38	25	204	314
Hot molten metals	5	12	1	7	14	29	74	142
Caustic or explosive materials	9	22	3	26	9	103	39	211
Hot liquids or solids	7	18	3	28	12	80	58	206
Gas or electric welding	9	25	4	5	32	18	130	223
Heat treating or tempering operations	7	19	4	6	18	27	65	146
None of the above	0	0	0	0	0	41	6	47

Chart Number 17.

Administration Question 15: When are visitors required to wear eye protective devices?

Student Question 16: When do visitors wear safety goggles/glasses?

GROUP I

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
When in the shop/lab	0	13	4	5	46	33	239	340
When engaged in or observing activity	1	35	3	74	92	148	296	649
Only when required	0	4	0	29	10	71	81	195
Not required/never	0	4	0	38	14	61	70	187
Do not know (Student)						170	118	288

GROUP II

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
When in the shop/lab	0	1	1	2	6	10	41	61
When engaged in or observing activity	0	9	4	20	28	33	97	191
Only when required	0	7	0	9	5	14	32	67
Not required/never	0	2	0	13	7	27	21	70
Do not know (Student)						63	35	98

GROUP III

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
When in the shop/lab	0	2	1	2	2	16	16	39
When engaged in or observing activity	7	14	1	18	21	58	106	225
Only when required	1	4	0	5	6	10	19	45
Not required/never	0	6	1	8	8	14	29	66
Do not know (Student)						54	41	95

Chart Number 18.

Administration Question 16: Do you as a teacher/administrator/local director always comply with the same policy required of your students with regard to the use of eye safety glasses?

Student Question 17: Does your teacher comply with the same safety requirements as students?

GROUP I

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Always	0	28	4	82	131	307	695	1247
Usually, but not always	1	23	3	49	29	84	74	263
Sometimes, but not usually	1	4	0	10	1	28	27	71
Never	1	1	0	4	1	40	9	56

GROUP II

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Always	0	9	3	23	38	98	173	344
Usually, but not always	0	11	2	14	7	33	43	110
Sometimes, but not usually	0	0	0	4	1	4	5	14
Never	0	0	0	2	0	8	4	14

GROUP III

	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Always	3	11	1	16	21	83	134	269
Usually, but not always	5	13	3	13	14	48	58	154
Sometimes, but not usually	0	3	0	2	1	9	14	29
Never	0	0	0	0	0	14	5	19

Chart Number 19.

Student Question 7: Do you comply with the eye safety policy of the class as you understand it?

GROUP I

	Sci. Students	I.A. Students	Total
Always	285	460	745
Most of the time but not always	139	310	449
Sometimes but not most of the time	23	32	55
Never	25	3	28

GROUP II

	Sci. Students	I.A. Students	Total
Always	69	114	183
Most of the time but not always	50	108	158
Sometimes but not most of the time	10	6	16
Never	14	1	15

GROUP III

	Sci. Students	I.A. Students	Total
Always	91	80	171
Most of the time but not always	54	111	165
Sometimes but not most of the time	7	16	23
Never	1	0	1

Chart Number 20.

Student Question 8: Have you been penalized for not complying with class eye safety policy?

GROUP I

	Science Student	I.A. Student	Total
Yes	29	109	138
No	456	695	1151

GROUP II

	Science Student	I.A. Student	Total
Yes	6	28	34
No	144	200	344

GROUP III

	Science Student	I.A. Student	Total
Yes	11	48	59
No	147	158	305

Chart Number 21.

Student Question 9: Have you been rewarded for complying with class eye safety policy?

GROUP I

	Science Student	I.A. Student	Total
Yes	34	121	155
No	452	680	1132

GROUP II

	Science Student	I.A. Student	Total
Yes	9	26	35
No	141	202	343

GROUP III

	Science Student	I.A. Student	Total
Yes	7	24	31
No	150	179	329

Chart Number 22.

Administration Question 12: How many students in your class/school/district have received an injury requiring medical attention due to failure to use protective eye wear since September, 1965?

Student Question 13: How many students in your class this year have received eye injuries requiring medical attention due to failure to use protective eye wear?

GROUP I	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Totals
None	0	48	3	138	152	341
1-2	0	4	1	3	4	12
3-4	0	0	1	0	2	3
5-10	0	0	0	0	0	0
More than 10	0	0	0	0	0	0
Unknown	1	4	2	11	4	22

GROUP II	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Totals
None	1	15	2	41	44	103
1-2	1	2	0	2	0	3
3-4	0	0	0	0	1	1
5-10	0	0	0	0	0	0
More than 10	0	0	0	0	0	0
Unknown	0	1	1	2	3	7

GROUP III	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Totals
None	8	28	3	32	35	106
1-2	0	1	1	1	2	5
3-4	0	0	0	0	0	0
5-10	0	0	0	0	0	0
More than 10	0	0	0	0	0	0
Unknown	2	1	0	3	0	6

Chart Number 23.

Administration Question 13: How many students in your class/school/district have received an injury requiring medical attention even though using safety eyewear since September 1965?

Student Question 14: How many students in your class this year have received eye injuries requiring medical attention even though they were wearing protective eye wear?

GROUP I	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
None	1	51	8	144	147	465	792	1608
1-2	0	3	0	0	10	2	1	16
3-4	0	0	0	0	2	0	1	3
5-10	0	0	0	0	1	0	0	1
More than 10	0	0	0	0	0	0	2	2
Unknown (Student)						38	18	56

GROUP II	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
None	2	17	2	40	43	140	224	468
1-2	0	0	0	1	2	0	0	3
3-4	0	0	0	0	0	0	0	0
5-10	0	0	0	0	1	0	0	1
More than 10	0	0	0	0	0	0	1	1
Unknown (Student)						0	3	3

GROUP III	Supt.	Princ.	Director	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
None	9	28	4	30	35	160	208	474
1-2	0	0	0	2	0	0	1	3
3-4	0	0	0	0	1	0	0	1
5-10	0	0	0	0	0	0	0	0
More than 10	0	0	0	0	0	0	0	0
Unknown (Student)						0	4	4

Chart Number 24.

Administration Question 14: How many instances have there been in your classes since September 1965 where eye injuries have been prevented because students were wearing protective eye wear?

Student Question 15: How many times has the use of protective eye wear prevented an accident to your own eyes?

GROUP I

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
None	96	46	402	418	962
1-2	17	23	72	260	372
3-4	4	10	11	75	100
5-10	2	9	1	23	35
More than 10	1	7	8	29	45
Unknown (Admin.)	28	67			95

GROUP II

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
None	33	15	126	116	290
1-2	4	4	19	75	103
3-4	0	0	1	15	16
5-10	1	1	2	7	11
More than 10	0	2	2	12	16
Unknown (Admin.)	6	24			30

GROUP III

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
None	16	9	142	107	274
1-2	6	4	17	41	68
3-4	0	3	0	19	22
5-10	0	2	0	4	6
More than 10	0	0	1	35	36
Unknown (Admin.)	8	20			28

Chart Number 25.

Student Question 12: Are there enough pairs of safety glasses or goggles in the shop/lab that every student in the class could work on an activity requiring eye protection during the same class period and be provided with the necessary protective eye wear?

GROUP I

	Science Student	I.A. Student	Total
Yes	361	676	1037
No	107	130	237

GROUP II

	Science Student	I.A. Student	Total
Yes	93	184	277
No	51	44	95

GROUP III

	Science Student	I.A. Student	Total
Yes	139	169	308
No	19	44	63

Chart Number 26.

Administration Question 6: Under the policy followed your class/school/district, when are student required to wear protective eye wear?

Student Question 3: According to the class policy, when are you required to wear safety glasses/goggles?

GROUP I

	Supt.	Princ.	Director	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Total
At all times in shop or lab	0	19	4	9	87	64	441	624
Engaged or observing activity	1	40	4	83	66	235	299	728
Only when actually doing activity	0	2	0	38	6	117	73	236
Use of eye wear not required	0	0	0	18	1	77	1	97

GROUP II

	Supt.	Princ.	Director	Sci. Teachers	I.A. Teachers	Sci. Students	I.A. Students	Total
At all times in shop or lab	0	4	1	4	12	24	86	131
Engaged or observing activity	3	14	3	19	32	65	114	250
Only when actually doing activity	0	2	0	16	3	32	26	79
Use of eye wear not required	0	0	1	5	0	34	0	40

GROUP III

	Supt.	Princ.	Director	Sci. Teachers	I.A. Teachers	Sci, Students	I.A. Students	Total
At all times in shop or lab	1	4	1	4	4	32	43	89
Engaged or observing activity	6	22	2	22	29	89	140	310
Only when actually doing activity	1	1	1	8	5	27	30	73
Use of eye wear not required	1	2	0	3	0	12	0	18

Chart Number 27.

Administration Question 20: If eye safety wear is shared by more than one user, how often are they sanitized?

Student Question 20: How often are the shared safety glasses/goggles sanitized?

GROUP I

	Supt.	Princ.	Direct	Sci. Teacher	I.A. Teacher	Sci. Students	Totals
After each use	0	7	0	26	6	47	86
Daily	0	3	0	5	2	11	21
Weekly	0	5	0	11	18	34	68
Monthly	0	3	0	11	17	12	43
Other (Student)						72	72
Not sanitized	1	9	2	41	43	61	157
Not shared (Admin)	0	19	2	32	61		114

GROUP II

	Supt.	Princ.	Direct	Sci. Teacher	I.A. Teacher	Sci. Student	Totals
After each use	0	3	0	2	4	7	16
Daily	0	0	0	2	0	1	3
Weekly	0	1	0	1	4	0	6
Monthly	1	2	2	5	5	8	23
Other (Student)						21	21
Not sanitized	0	2	0	20	9	32	63
Not shared (Admin)	1	8	0	13	21		43

GROUP III

	Supt.	Princ.	Direct	Sci. Teacher	I.A. Teacher	Sci. Student	Totals
After each use	0	0	2	2	0	9	13
Daily	0	1	0	0	0	0	1
Weekly	0	2	0	0	5	4	11
Monthly	0	1	0	1	3	1	6
Other						36	36
Not sanitized	0	6	1	10	14	22	53
Not shared (Admin)	1	9	0	17	14		41

Chart Number 28.

Student Question 21: Who actually sanitizes the safety glasses/goggles?

GROUP I

	Science Student
Students who use them	26
Teacher	77
Other	33
Do not know	113

GROUP II

	Science Student
Students who use them	7
Teacher	14
Other	8
Do not know	45

GROUP III

	Science Student
Students who use them	7
Teacher	8
Other	6
Do not know	32

Chart Number 29.

Administration Question 21: If eye wear is shared and sanitized periodically what is the method used for sanitization?

Student Question 22: If eye wear is shared and sanitized periodically, what is the method used for sanitization?

GROUP I

	Sci. Teacher	I.A. Teacher	Sci. Student
Detergent and warm water	50	43	88
Formaldehyde solution for 10 min.	1	0	7
Phenolic, Hypochlorite or ammonium	3	6	3
Moist formaldehyde atmosphere	0	0	2
Infrared lamp	0	1	1
Sulphuric acid	0	0	1
Other	17	10	70
Not shared	33	61	17
Not sanitized	35	31	62

GROUP II

	Sci. Teacher	I.A. Teacher	Sci. Student
Detergent and warm water	8	10	17
Formaldehyde solution for 10 min.	2	0	4
Phenolic, Hypochlorite or ammonium	0	1	0
Moist formaldehyde atmosphere	0	0	0
Infrared lamp	0	0	0
Sulphuric acid	0	0	0
Other	3	8	17
Not shared	10	22	12
Not sanitized	17	6	21

GROUP III

	Sci. Teacher	I.A. Teacher	Sci. Student
Detergent and warm water	6	7	32
Formaldehyde solution for 10 min.	0	0	0
Phenolic, Hypochlorite or ammonium	0	2	0
Moist formaldehyde atmosphere	0	0	0
Infrared lamp	0	0	0
Sulphuric acid	0	0	18
Other	1	0	12
Not shared	18	14	6
Not sanitized	6	13	25

Chart Number 30.

Administration Question 22:	Check the types of protective eye wear available in your shop or lab.
Student Question 18:	Indicate the types of protective eye wear available to you in the shop or lab.

GROUP I

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Glass lenses and side shields	9	83	36	378	506
Glass lenses and no side shields	8	12	11	79	110
Plastic lenses and side shields	59	48	215	384	706
Plastic lenses and no side shields	7	11	26	66	110
Chipper model goggles	15	52	75	245	387
Dust and splash model goggles	40	39	97	126	302
Welder and cutter model goggles	2	67	23	266	358
Face shield for protection	5	77	26	308	416
Other	14	9	58	36	117

GROUP II

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Glass lenses and side shields	8	16	18	94	136
Glass lenses and no side shields	1	4	11	27	43
Plastic lenses and side shields	16	17	63	83	179
Plastic lenses and no side shields	4	1	13	16	34
Chipper model goggles	5	19	21	63	108
Dust and splash model goggles	13	7	33	50	103
Welder and cutter model goggles	0	16	5	60	81
Face shield for protection	2	16	6	55	79
Other	4	2	17	1	24

GROUP III

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Total
Glass lenses and side shields	1	13	4	69	87
Glass lenses and no side shields	0	1	8	11	20
Plastic lenses and side shields	18	20	71	133	242
Plastic lenses and no side shields	3	1	29	12	45
Chipper model goggles	5	10	19	75	109
Dust and splash model goggles	13	8	40	59	120
Welder and cutter model goggles	0	24	6	127	157
Face shield for protection	0	12	8	98	118
Other	1	3	6	9	19

Chart Number 31.

Administration Question 23: Of the nine alternatives listed in question 22, which type of safety eye wear will students wear most readily and willingly?

Student Question 19: Which of the nine (9) alternatives listed in question 18 that are available to you do you prefer to use?

GROUP I

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
1	11	72	61	339	483
2	13	27	18	54	112
3	56	28	189	262	535
4	6	10	20	34	70
5	10	12	52	118	192
6	13	12	75	59	159
7	1	11	13	84	109
8	2	23	28	108	161
9	0	6	28	24	58

GROUP II

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
1	7	14	17	81	119
2	0	12	4	14	30
3	14	8	57	37	116
4	4	1	14	11	30
5	3	5	9	35	52
6	6	2	26	38	72
7	1	5	2	15	23
8	1	5	6	24	36
9	3	1	15	2	21

GROUP III

	Sci. Teacher	I.A. Teacher	Sci. Student	I.A. Student	Totals
1	0	14	7	47	68
2	0	2	7	8	17
3	12	13	58	95	178
4	5	2	18	5	30
5	4	2	14	57	77
6	10	3	36	26	75
7	0	12	6	55	73
8	0	3	11	34	48
9	0	1	1	8	10

Chart Number 32.

Administration Question 24: Of the nine alternatives listed in question 22 and 23, which type do you, as a teacher, most prefer and recommend to students for the activities participated in by your class?

GROUP I

	Science Teachers	Industrial Art Teachers	Total
1	4	97	101
2	16	20	36
3	59	24	83
4	3	6	9
5	9	10	19
6	27	13	40
7	1	5	6
8	3	14	17
9	4	4	8

GROUP II

	Science Teachers	Industrial Art Teachers	Total
1	9	28	37
2	1	7	8
3	11	8	19
4	2	1	3
5	2	3	5
6	9	3	12
7	0	3	3
8	1	2	3
9	3	1	4

GROUP III

	Science Teachers	Industrial Art Teachers	Total
1	1	13	14
2	0	2	2
3	18	13	31
4	3	2	5
5	4	2	6
6	10	4	14
7	0	10	10
8	2	3	5
9	0	0	0

Chart Number 33.

Administration Question 25: As between goggles and safety spectacles with plastic lenses and safety spectacles with glass lenses, which do you prefer for amount of protection given and durability?

GROUP I

	Science Teachers	Industrial Art Teachers	Total
Spectacles/goggles with plastic lenses	24	7	31
Goggles with plastic lenses	55	18	73
Spectacles with plastic lenses	17	17	34
Spectacles with glass lenses	15	105	120
No preference	24	16	40

GROUP II

	Science Teachers	Industrial Art Teachers	Total
Spectacles/goggles with plastic lenses	8	3	11
Goggles with plastic lenses	14	5	19
Spectacles with plastic lenses	2	6	8
Spectacles with glass lenses	7	24	31
No preference	11	9	20

GROUP III

	Science Teachers	Industrial Art Teachers	Total
Spectacles/goggles with plastic lenses	4	6	10
Goggles with plastic lenses	21	8	29
Spectacles with plastic lenses	4	3	7
Spectacles with glass lenses	3	15	18
No preference	4	6	10

Chart Number 34.

Administration Question 30: Have you a copy of the American Standard Safety Code for Head, Eye and Respiratory Protection (hereafter referred to as the American Safety Code?)

GROUP I

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Totals
Yes	0	11	2	7	32	52
No	1	39	5	135	121	305

GROUP II

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Totals
Yes	2	3	0	4	7	16
No	1	14	4	40	36	95

GROUP III

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Totals
Yes	3	6	1	1	6	17
No	6	17	2	35	31	91

Chart Number 35.

Administration Question 31: Have you read the American Standard Safety Code, regardless of whether or not you have a copy?

GROUP I

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	0	11	2	15	52	80
No	1	28	4	83	75	191
Have no knowledge of it	0	12	2	45	27	86

GROUP II

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	2	5	1	8	13	29
No	1	8	3	21	22	55
Have no knowledge of it	0	3	0	14	7	24

GROUP III

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	2	11	2	1	11	27
No	6	9	0	24	19	58
Have no knowledge of it	1	0	1	11	7	20

Chart Number 36.

Administration Question 33: Do you feel that additional directives are needed on eye safety from the State School offices?

GROUP I

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	0	15	4	48	45	112
No	1	39	4	94	108	246

GROUP II

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	2	10	4	18	21	55
No	1	8	0	25	24	58

GROUP III

	Supt.	Princ.	Direct.	Sci. Teacher	I.A. Teacher	Total
Yes	3	13	0	16	11	43
No	6	11	3	20	24	64